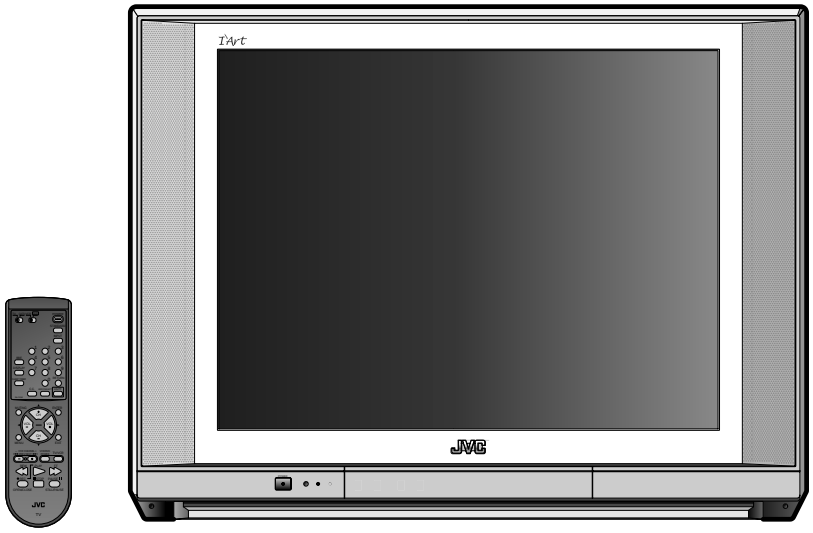
JVC

SERVICE MANUAL

COLOR TELEVISION

AV-20F703



MC-Service

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No. 52001
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SPECIFICATIONS

TELEVISION

Picture Tube:	20” (measured diagonally)
Color System:	NTSC
TV RF System:	CCIR (M)
Tuner Type:	181 Channel, Quartz PLL Frequency Synthesized
Receiving Channels:	VHF 2-13
	UHF 14-69
	CATV 01-97 (5A)-(A-3)
	98-99 (A-2)-(A-1)
	14-22 (A)-(I)
	23-36 (J)-(W)
	37-65 (AA)-(FFF)
	66-125 (GGG)-(125)
Intermediate Frequency:	Picture (FP) : 45.75 MHz
	Sound (FS) : 41.25 MHz
	FP-FS : 4.50 MHz
Antenna Input:	VHF/UHF In 75 ohms coaxial, F-Type Connector
Speaker:	2” x 4-3/4”, 8 ohms x 2
Audio Output Power:	2.5 W + 2.5 W

GENERAL

Power Source:	120 V AC, 60 Hz
Power Consumption:	105 Watts
Dimensions(W x H x D):	23-1/4” (590 mm) x 17-1/2” (444 mm) x 19-3/4” (498.5 mm)
Weight:	50.6 lbs/23 kg
Video/Audio Inputs:	Component input
	Y input: 1.0 Vp-p, 75 ohm (RCA pin jack)
	Pb, Pr input : 0.7 Vp-p, 75 ohm (RCA pin jack)
	S-Video input
	Y input: 1.0 Vp-p, 75 ohm
	C input: 0.3 Vp-p, 75 ohm
	Video input: 1.0 Vp-p, 75 ohm (RCA pin jack)
	Audio input: -8dB, 47 kohm (RCA pin jack)
Headphone Jack:	3.5 mm mini-jack
Storage Temperature	-20 °C ~ 60 °C
Operating Temperature	5 °C ~ 40 °C

Accessories:

Remote Control X 1
Batteries (UM-3) X 2

Design & specification are subject to change without notice.

SAFETY PRECAUTIONS

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

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SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

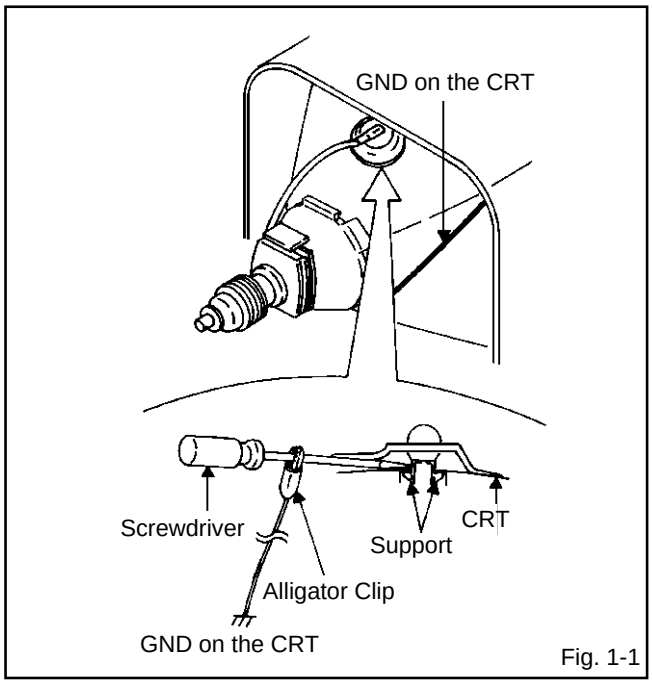


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

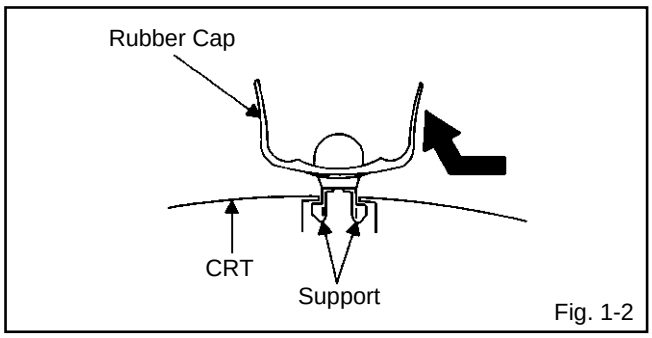


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

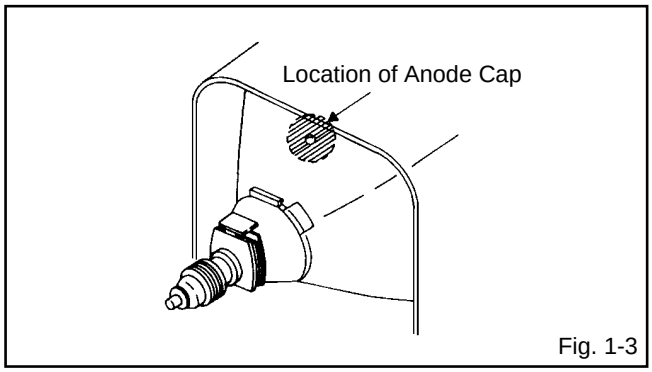


Fig. 1-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**

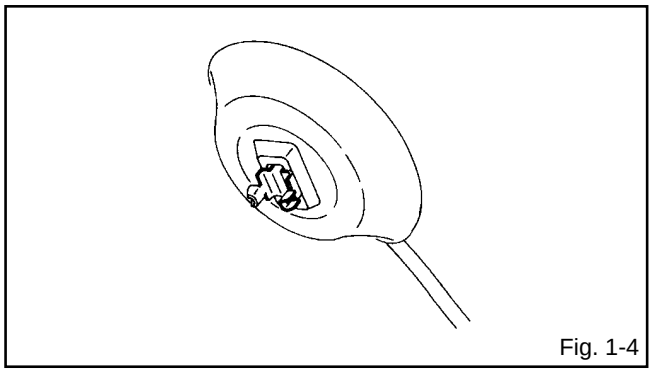


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5**.

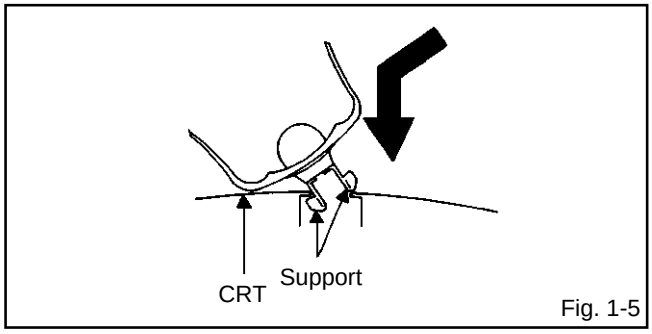


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

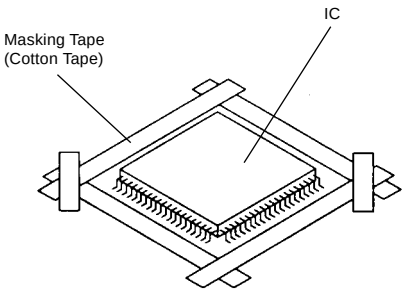


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

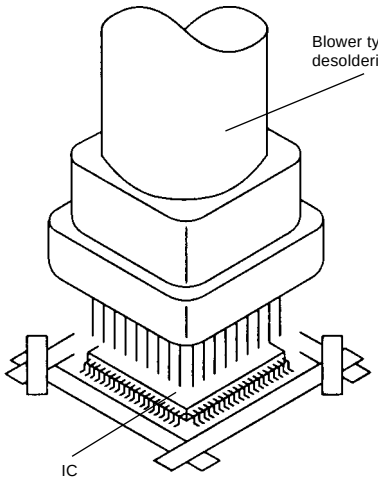


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

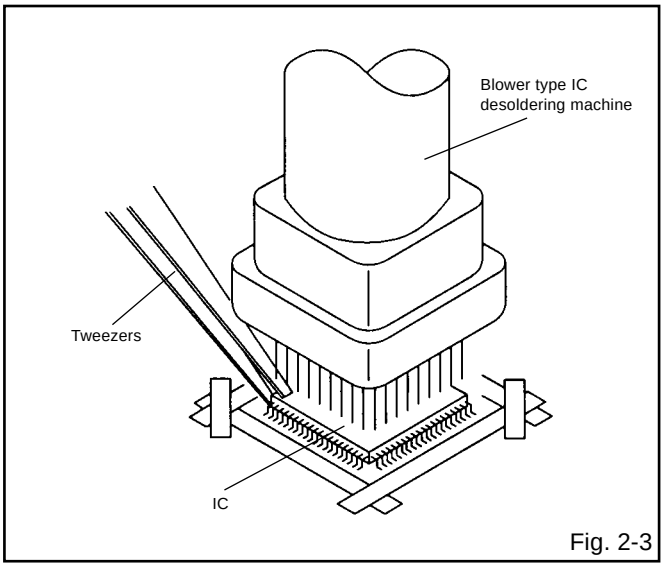


Fig. 2-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

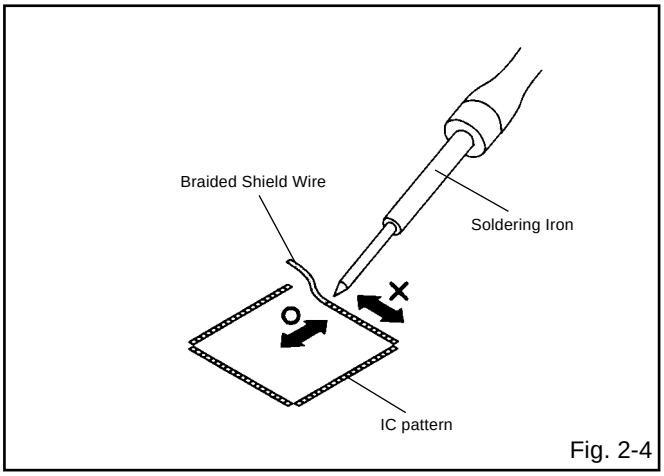


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

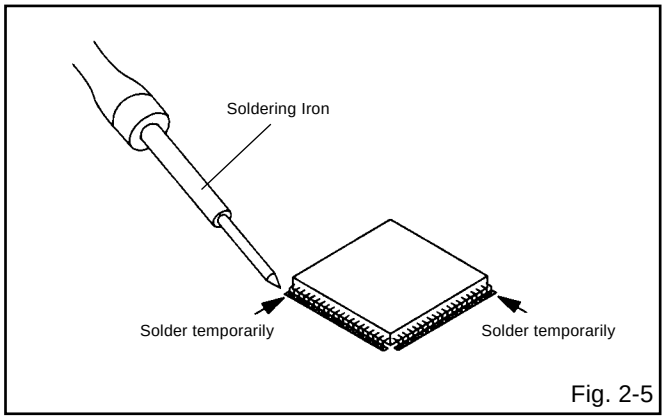


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

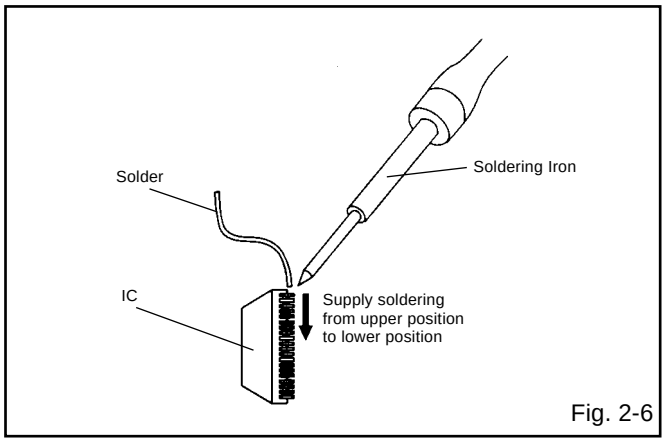


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

   NOTE

   Do not absorb the solder to excess.

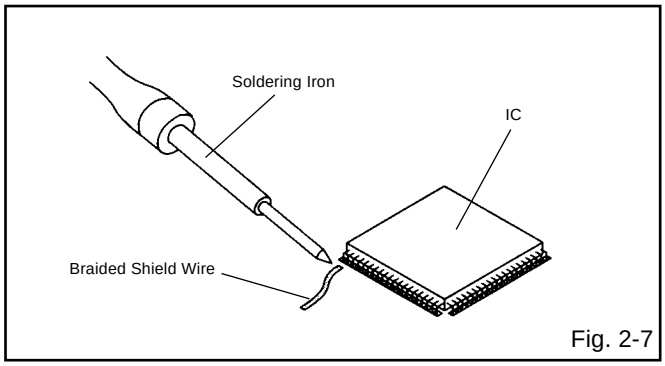


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 2-8.)**

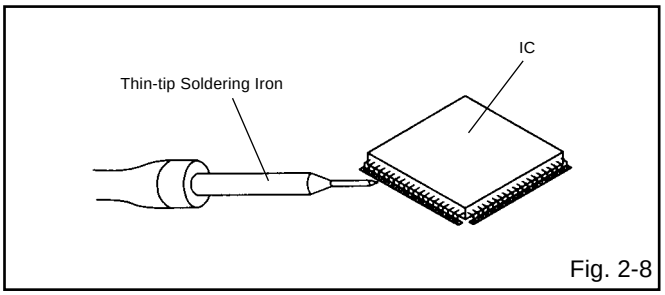


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

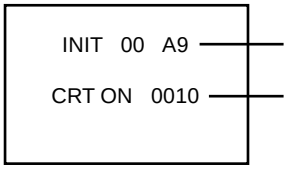
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
VOL. (-) MIN	3	Remocon format selection. (JVC format → NEC format) NOTE: Supplied remocon can not be operated at NEC format. (The “N” is always displayed on the monitor.) Do not use this for the normal servicing.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the “CONFIRMATION OF HOURS USED. Can be checked of the INITIAL DATA of MEMORY IC. Refer to the “WHEN REPLACING EEPROM (MEMORY) IC”.
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the “ELECTRICAL ADJUSTMENT” (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to “0”.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.



Initial setting content of MEMORY IC.

POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	A9	C3	02	00	31	B3	AF	37	BF	0A	44	04	00	00	00	70
10	40	00	00	00	00	00	00	00	00	00	00	00	0F	A5	45	20
20	61	63	64	26	67	69	2B	6C	6D	6E	6F	70	71	72	53	73
30	54	74	55	75	56	76	76	57	57	77	77	58	58	78	78	59
40	59	79	79	5A	5A	7A	7A	5B	5B	5B	7B	7B	7B	5C	5C	5C
50	7C	7C	7C	5D	5D	7D	7D	5E	5E	7E	7E	5F	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.

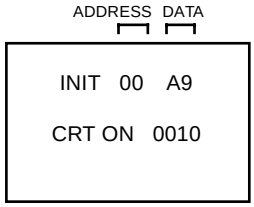


Fig. 1

3. ADDRESS is now selected and should “blink”. Using the VOL. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will “blink”.
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICE ADJUSTMENTS

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease **(YG6260M)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

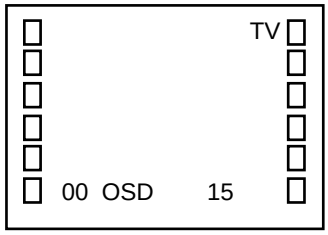


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION	NO.	FUNCTION
00	OSD H	14	G.BIAS	28	RGB CONTRAST
01	CUT OFF	15	B.BIAS	29	PARABORA
02	RF.AGC	16	BRI.CENT	30	TRAPEZIU
03	---	17	SUB CONT	31	COR TOP
04	H.POSI	18	CONT.MAX	32	COR BTM
05	V.POSI	19	CONT.CENT	33	V EHT
06	H.SIZE	20	CONT.MIN	34	H EHT
07	V.SIZE	21	BRI.MAX	35	FM.LVL
08	V.CENT	22	BRI.MIN	36	LEVEL
09	V.LIN	23	COL.MAX	37	SEP 1
10	VS CORR	24	COL.CENT	38	SEP 2
11	G.DRV	25	COL.MIN	39	T.STE
12	B.DRV	26	TINT	40	X-RAY
13	R.BIAS	27	SHARPNESS	88	READ DATA

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Connect the digital voltmeter to the **TP002**.
3. Adjust the **VR502** until the DC voltage is 116 ± 1V.

2-2: RF AGC

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the VHF HIGH (63dB).
3. Connect the digital voltmeter between the **pin 5 of CP101** and the **pin 1 (GND) of CP101**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select “RF AGC”.
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.1 ± 0.05V.

2-3: CUT OFF

1. Adjust the unit to the following settings. G. DRIVE=64, B. DRIVE=64, R. BIAS=64, G. BIAS=64, B. BIAS=64
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and
4. press the channel button **(01)** on the remote control to select “CUT OFF”.
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select “R. BIAS”.
5. Press the CH. UP/DOWN button on the remote control to select the “R. BIAS”, “G. BIAS”, “B. BIAS”, “B. DRIVE” or “G. DRIVE”.
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R. BIAS, G. BIAS, B. BIAS, B. DRIVE, and G. DRIVE at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

ELECTRICAL ADJUSTMENTS

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select “H. POSI”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select “V. POSI”.
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-8: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select “V. SIZE”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes 9 ± 2%.

2-9: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-8. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select “V. LIN”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-10: LEVEL

1. Receive the monoscope pattern (70dB).
2. Connect the AC voltmeter to **pin 6 of CP101** and the **pin 1 (GND) of CP101**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(36)** on the remote control to select “LEVEL”.
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 75 ± 2mV.

2-11: SUB BRIGHTNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select “BRI. CENT”.
2. Press the VOL. UP/DOWN button on the remote control until the brightness step No. becomes “50”.
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the INPUT button on the remote control to set to the CS mode. Then perform the above adjustments 1~3.

2-12: TINT/COLOR CENT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP806**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select “TINT”.
5. Press the VOL. UP/DOWN button on the remote control until the section “A” becomes a straight line **(Refer to Fig. 2-1)**.
6. Connect the oscilloscope to **TP804**.
7. Press the channel button **(24)** on the remote control to select “COL. CENT”.
8. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4.4 scales on the screen of the oscilloscope.
9. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 115 ± 10% of the white level. **(Refer to Fig. 2-2)**
10. Receive the color bar pattern. (Audio Video Input)
11. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~9.
12. Press the INPUT button on the remote control to set to the CS mode.
13. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select “TINT”.
14 Press the VOL. UP/DOWN button on the remote control until the tint step No. becomes “50”.
15. Press the channel button **(24)** on the remote control to select “COL. CENT”.
16. Press the VOL. UP/DOWN button on the remote control until the color step No. becomes “62”.
17. Receive a broadcast and check if the picture is normal.

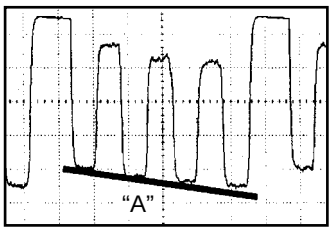


Fig. 2-1

ELECTRICAL ADJUSTMENTS

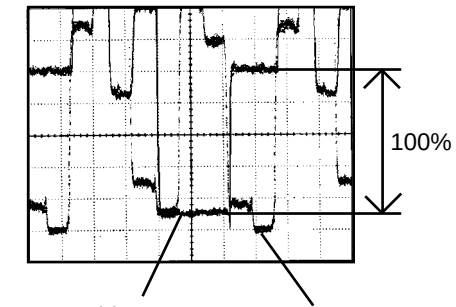


Fig. 2-2

2-13: CONTRAST MAX MANUAL

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select “CONT. MAX”.
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes “85”.
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the INPUT button on the remote control to set to the CS mode. Then perform the above adjustments 1~3.

2-14: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

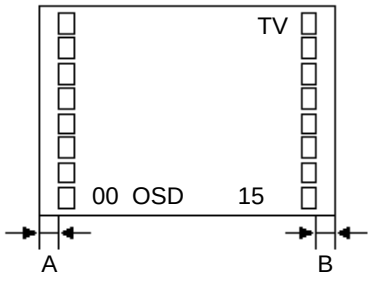


Fig. 2-3

2-15: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV	CS
06	H SIZE	00	00	00
08	V CENT	08	08	08
10	VS CORR	10	10	10
17	SUB CONT	09	09	09
19	CONT CENT	60	60	60
20	CONT MIN	25	25	25
21	BRI MAX	127	127	127
22	BRI MIN	20	20	20
23	COL MAX	110	110	110
25	COL MIN	00	00	00
27	SHARP	40	40	40
28	RGB CONTRAST	38	38	38
29	PARABOLA	00	00	00
30	TRAPEZIN	00	00	00
31	COR TOP	00	00	00
32	COR BTM	00	00	00
33	V EHT	00	00	00
34	H EHT	00	00	00
35	FM LEVEL	01	01	01
39	T.STE	00	00	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

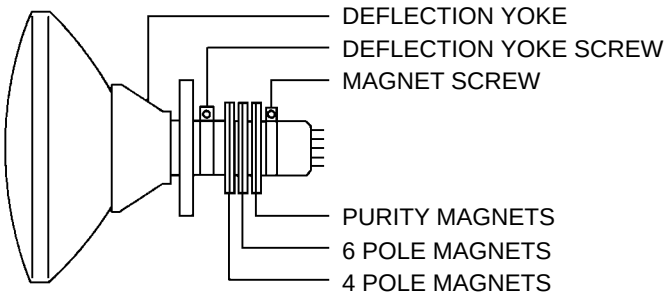


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

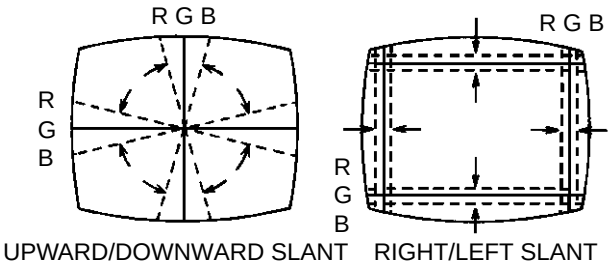
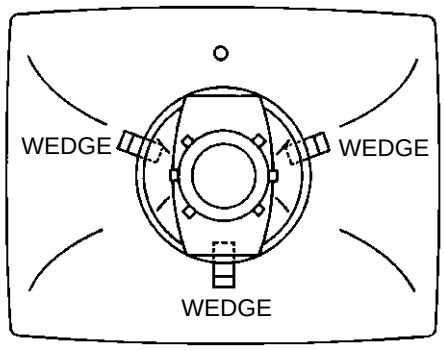


Fig. 3-2-a

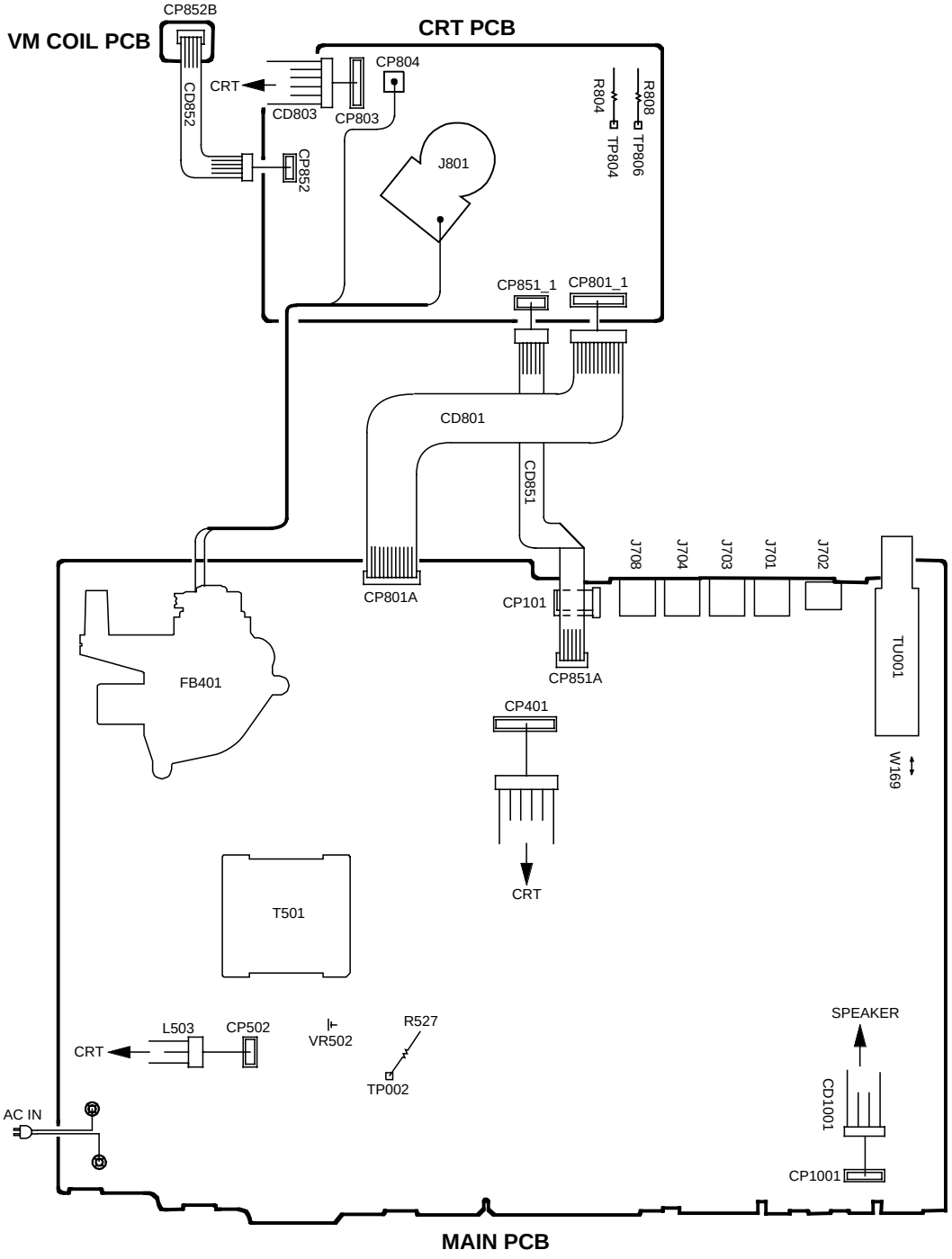


WEDGE POSITION

Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



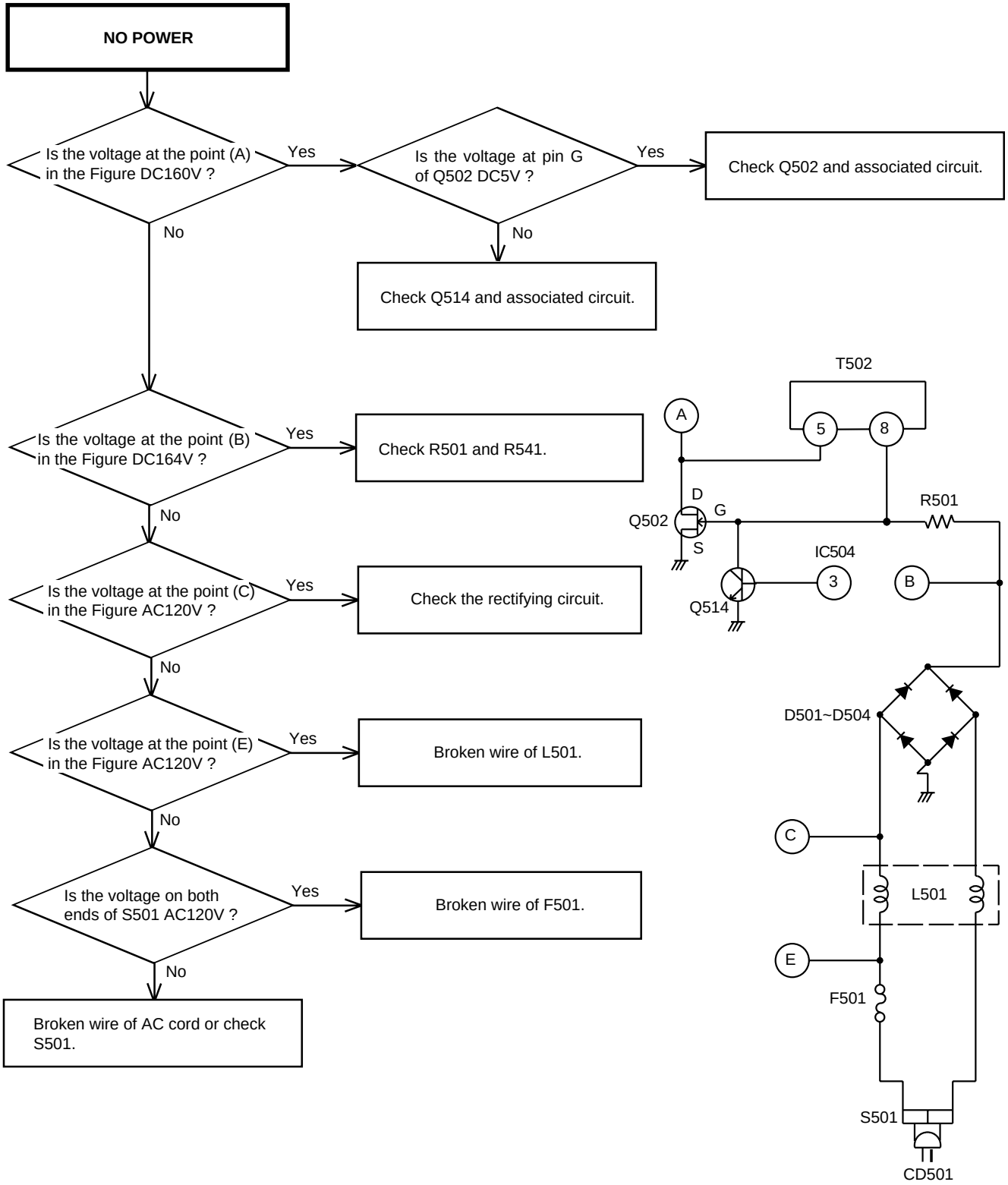
GUIDE FOR REPAIRING

IC DESCRIPTION

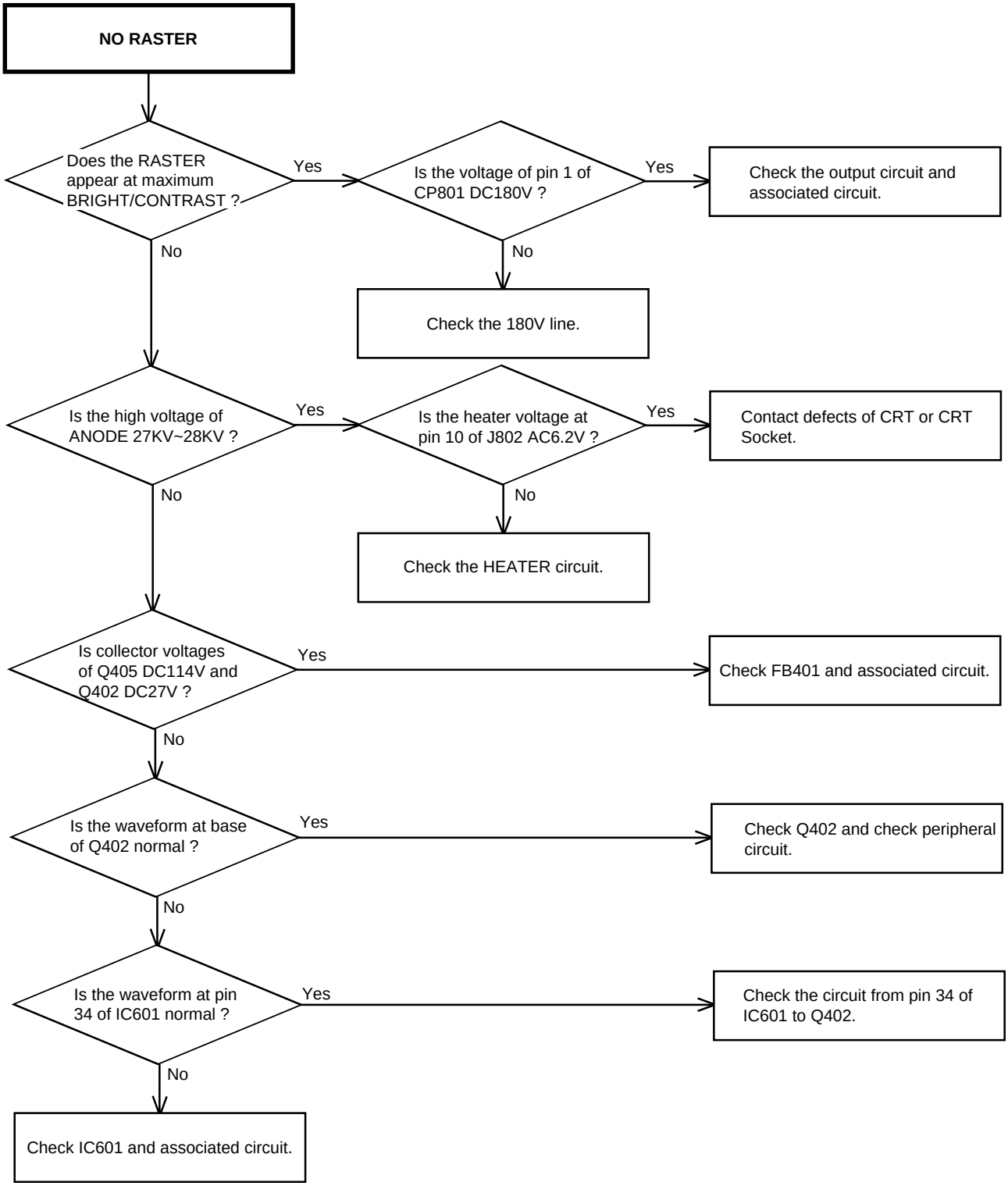
MAIN PCB OEC7075A (IC101)

NO.	Pin name	Symbol	I/O	Logic	Function	Option
1	P11/SCL1	AUDIO MUTE	O	0	Audio MUTE Output	C-MOS
2	P00/PM0	EXT MUTE	O	1	Audio MUTE Output for external Output	Nch-OD
3	P01/PWM1	STANDBY_H	O	1	Output HIGH at a teleevision power off.	Nch-OD
4	P02/PWM2	BBE-H	O		BBE Control Output	Nch-OD
5	P03/PWM3/AD1	AFT	I		Voltage of tuning input	Nch-OD
6	P04/PWM4/AD2	KEY1	I		Main unit key input	Nch-OD
7	P05/AD3	KEY2	I		Main unit key input	Nch-OD
8	P06/INT2/AD4	X-RAY	I		Input terminal of X-RAY detection.	Nch-OD
9	P07/INT1	REMOCON	I		Remote control input	Nch-OD
10	P20/SCLK/AD5	ONTIMER LED	O		ON-TIMER LED control output.	C-MOS
11	P21/AOUT/AD6		O			C-MOS
12	P22/SIN/AD7	AV2	O		External SW output2	C-MOS
13	P23/TIM3	AV1	O		External SW output1	C-MOS
14	P24/TIM2		O			C-MOS
15	P25/INT3	POWER FAIL	I	0	Power failure detector input	C-MOS
16	P26/XCIN	DEGAUSS_H	O	1	Degauss output	C-MOS
17	P27/XCOUT	X-RAY_TEST	O	1	X-RAY detector input	C-MOS
18	CNVSS	CNVSS			GND	
19	XIN	Xin	I		Main Oscillation	
20	XOUT	Xout	O		Main Oscillation	
21	VSS	VSS			GND	
22	VCC	VCC			5V	
23	FILT	FILT		S		
24	HLF	HLF	O		Filter of slicer	
25	VHOLD	V.HOLD	I		Condenser of slicer	
26	CVIN	CVIN	I		Video signal input	
27	RESET	RESET	I	0	Reset signal input	
28	FSCIN	(FSCIN)	I		(Main Clock Occurrence circuit input)	
29	PONCONT/P15	POWER	O	1	Power control output.	C-MOS
30	P31/SCL3	SCL1	O		Serial clock output (IIC BUS)	C-MOS
31	P30/SDA3	SDA1	I/O		Serial data input/output	C-MOS
32	CLKCONT/P10	(CLOCK CONT)	O		(Main Clock Request output)	C-MOS
33	P55/OUT	BRANK	O	1	BLANK Output for OSD/CCD	C-MOS
34	P54/R	RED R	O	1	Red output of RGB image output	C-MOS
35	P53/G	GREEN G	O	1	Green output of RGB image output	C-MOS
36	P52/B	BLUE B	O	1	Blue output of RGB image output	C-MOS
37	P51/VSYNC	V.SYNC	I	0	Vertical synchronization input	
38	P50/HSYNC	H.SYNC	I	0	Horizontal synchronization input	
39	P16/AD8/TIM2	SYNC	I		Input terminal for H-SYNC.	C-MOS
40	P14/SDA2	IIC_OFF	I	0	Serial clock/data stop input	C-MOS
41	P13/SDA1	PROTECT	O	1	Output HIGH at turning off a television.	C-MOS
42	P12/SCL2	H_CTL	O	1	Output HIGH at turning off a television.	C-MOS

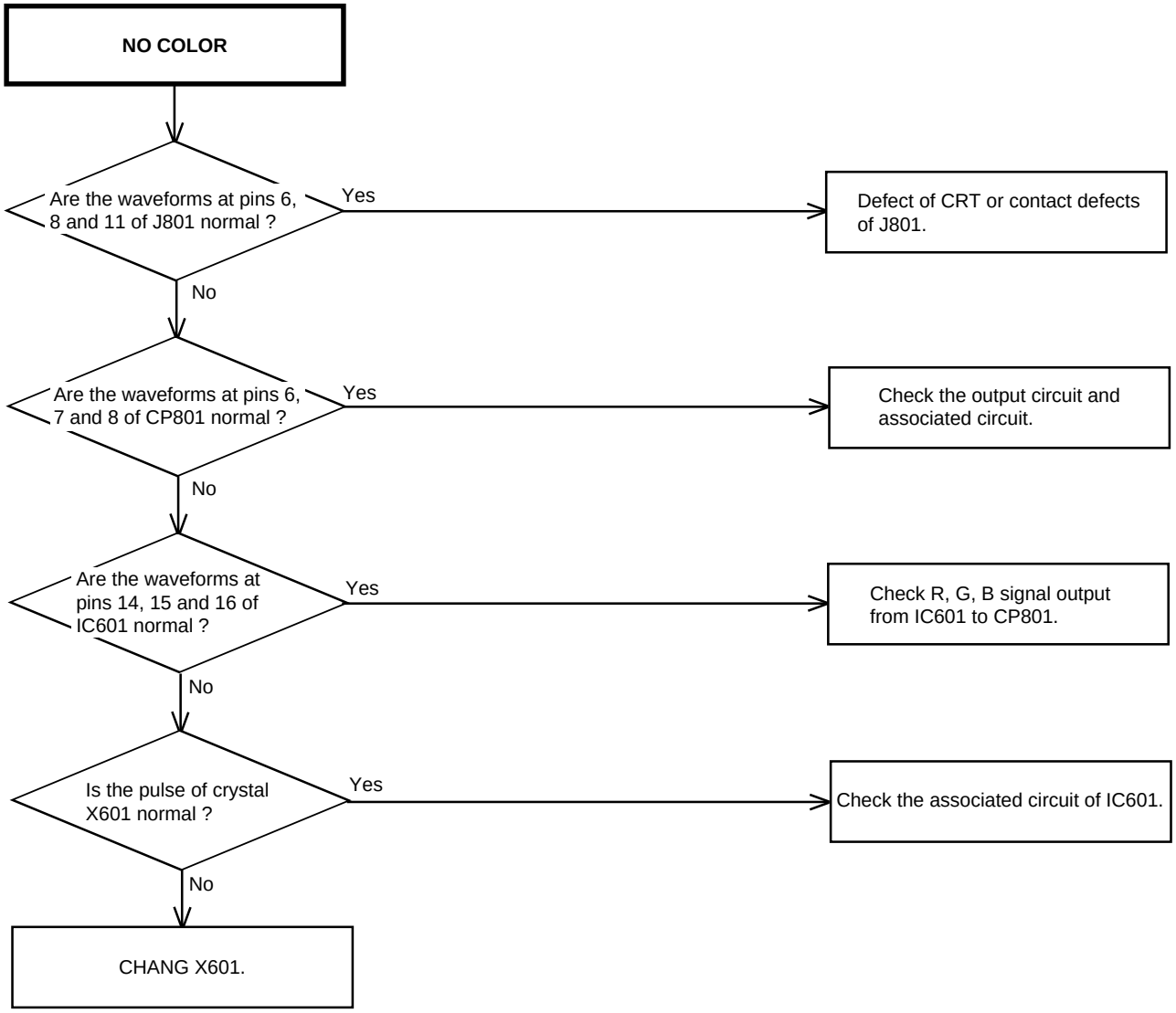
TROUBLESHOOTING GUIDE



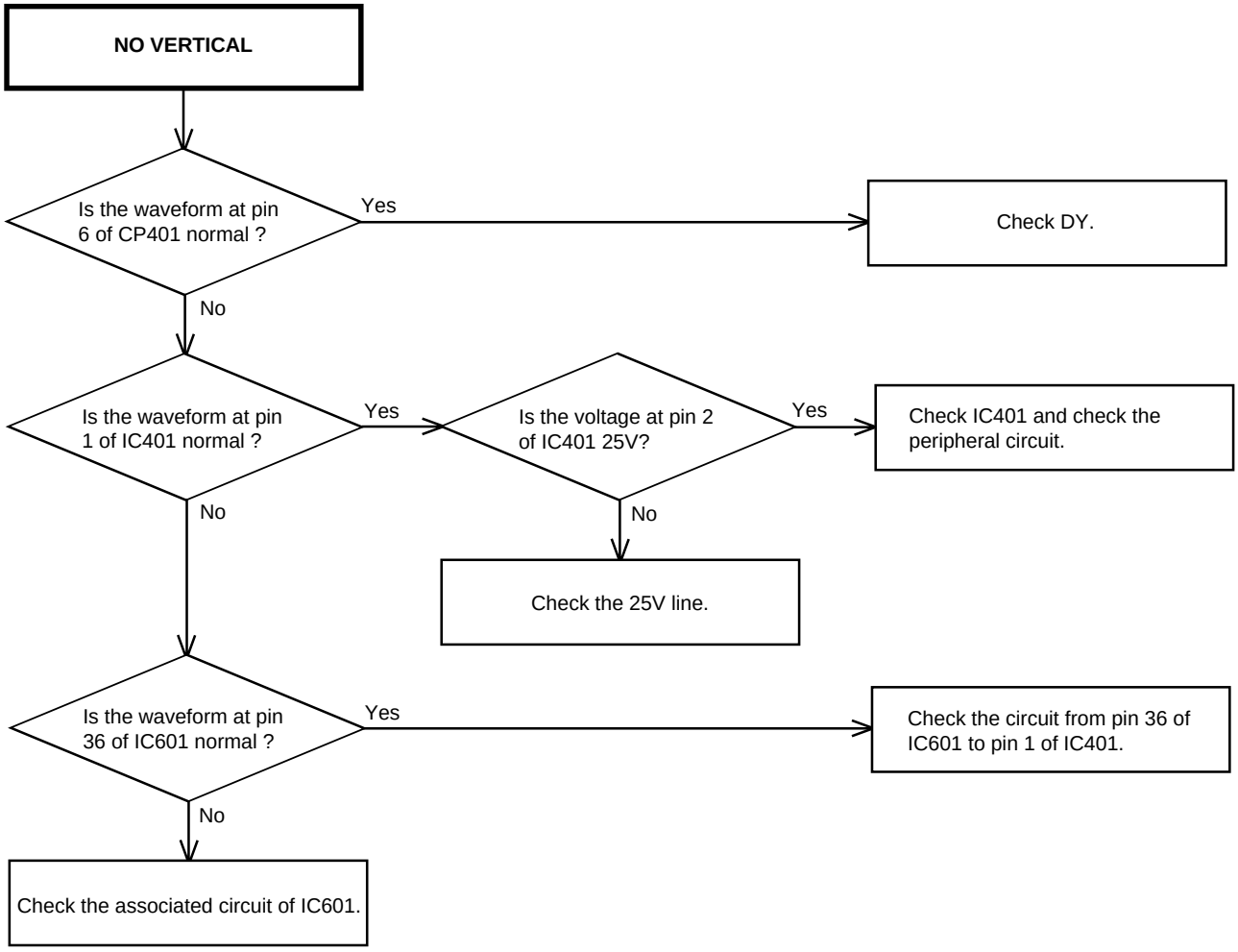
TROUBLESHOOTING GUIDE


NO RASTER
Does the RASTER appear at maximum BRIGHT/CONTRAST ?
Yes
Is the voltage of pin 1 of CP801 DC180V ?
Yes
Check the output circuit and associated circuit.
No
No
Check the 180V line.
Is the high voltage of ANODE 27KV~28KV ?
Yes
Is the heater voltage at pin 10 of J802 AC6.2V ?
Yes
Contact defects of CRT or CRT Socket.
No
No
Check the HEATER circuit.
Is collector voltages of Q405 DC114V and Q402 DC27V ?
Yes
Check FB401 and associated circuit.
No
Is the waveform at base of Q402 normal ?
Yes
Check Q402 and check peripheral circuit.
No
Is the waveform at pin 34 of IC601 normal ?
Yes
Check the circuit from pin 34 of IC601 to Q402.
No
Check IC601 and associated circuit.

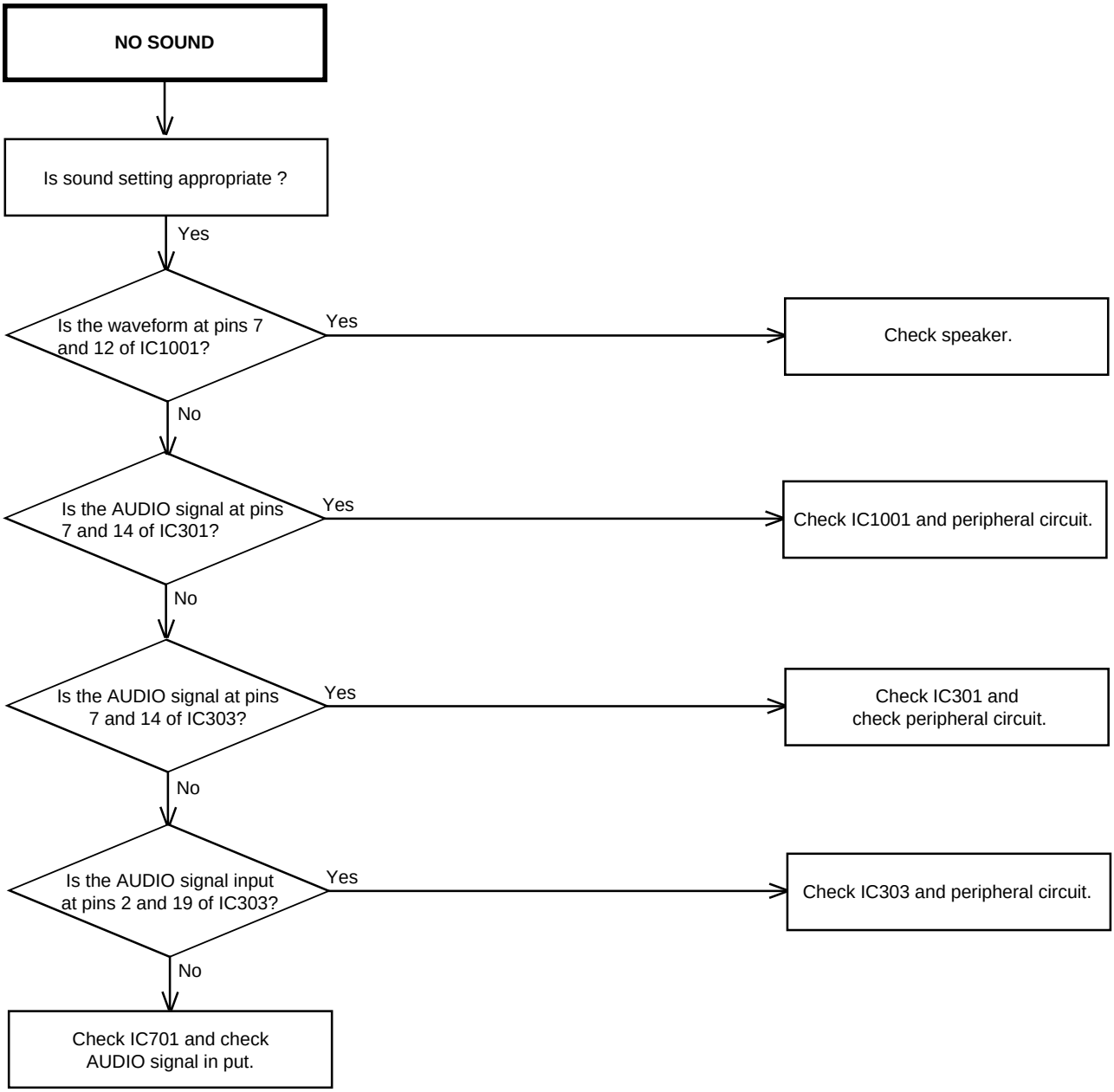
TROUBLESHOOTING GUIDE


NO COLOR
Are the waveforms at pins 6, 8 and 11 of J801 normal ?
Yes
Defect of CRT or contact defects of J801.
No
Are the waveforms at pins 6, 7 and 8 of CP801 normal ?
Yes
Check the output circuit and associated circuit.
No
Are the waveforms at pins 14, 15 and 16 of IC601 normal ?
Yes
Check R, G, B signal output from IC601 to CP801.
No
Is the pulse of crystal X601 normal ?
Yes
Check the associated circuit of IC601.
No
CHANG X601.

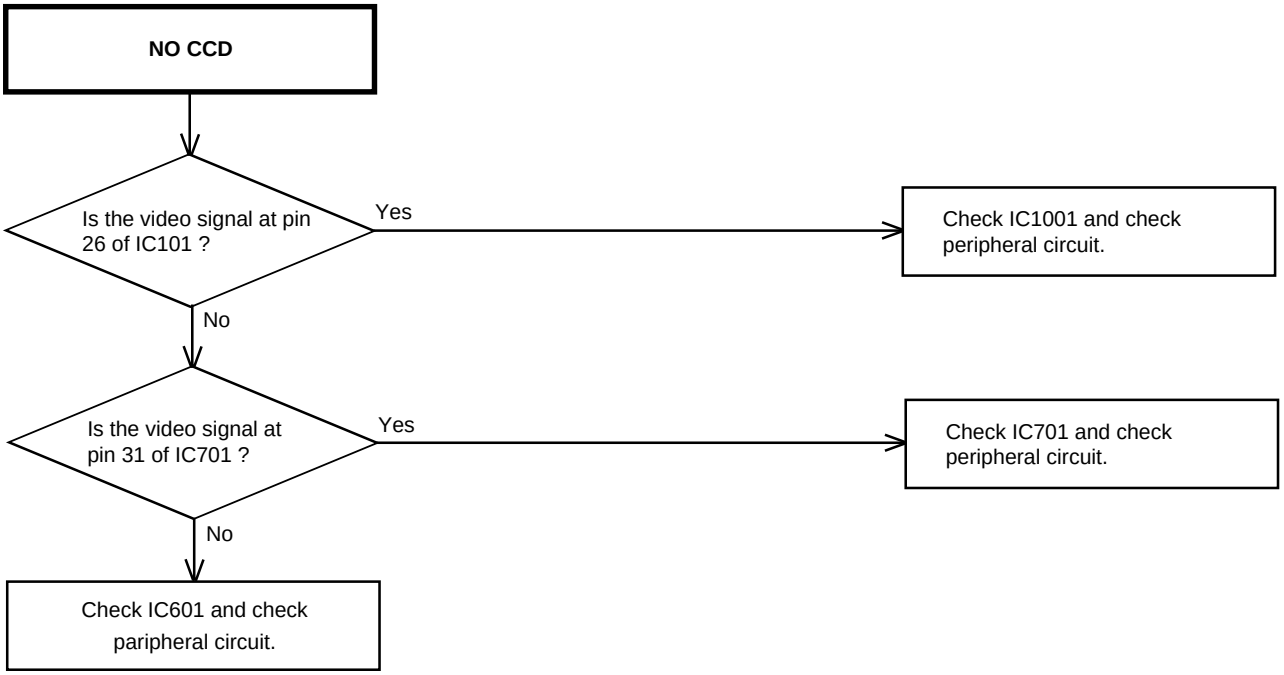
TROUBLESHOOTING GUIDE


NO VERTICAL
Is the waveform at pin 6 of CP401 normal ?
Yes
Check DY.
No
Is the waveform at pin 1 of IC401 normal ?
Yes
Is the voltage at pin 2 of IC401 25V?
Yes
Check IC401 and check the peripheral circuit.
No
No
Check the 25V line.
Is the waveform at pin 36 of IC601 normal ?
Yes
Check the circuit from pin 36 of IC601 to pin 1 of IC401.
No
Check the associated circuit of IC601.

TROUBLESHOOTING GUIDE


NO SOUND
Is sound setting appropriate ?
Yes
Is the waveform at pins 7 and 12 of IC1001?
Yes
Check speaker.
No
Is the AUDIO signal at pins 7 and 14 of IC301?
Yes
Check IC1001 and peripheral circuit.
No
Is the AUDIO signal at pins 7 and 14 of IC303?
Yes
Check IC301 and check peripheral circuit.
No
Is the AUDIO signal input at pins 2 and 19 of IC303?
Yes
Check IC303 and peripheral circuit.
No
Check IC701 and check AUDIO signal in put.

TROUBLESHOOTING GUIDE


NO CCD
Is the video signal at pin 26 of IC101 ?
Yes
Check IC1001 and check peripheral circuit.
No
Is the video signal at pin 31 of IC701 ?
Yes
Check IC701 and check peripheral circuit.
No
Check IC601 and check paripheral circuit.

PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied .
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied .

ABBREVIATIONS OF RESISTORS, CAPACITORS

RESISTOR

RC.....	CARBON RESISTOR
MG R.....	METAL GLAZED RESISTOR

CAPACITORS

CC.....	CERAMIC CAPACITOR
CE.....	ALUMI ELECTROLYTIC CAPACITOR
CP.....	POLYESTER CAPACITOR
CPP.....	POLYPROPYLENE CAPACITOR
CPL.....	PLASTIC CAPACITOR
CMP.....	METAL POLYESTER CAPACITOR
CMPL.....	METAL PLASTIC CAPACITOR
CMPP.....	METAL POLYPROPYLENE CAPACITOR

CONTENTS

- USING P.W. BOARD 21
- MECHANICAL REPLACEMENT PARTS LIST 22
- MECHANICAL EXPLODED VIEW 23
- ELECTRICAL REPLACEMENT PARTS LIST 24
- PACKING & ACCESSORY REPLACEMENT PARTS LIST 30

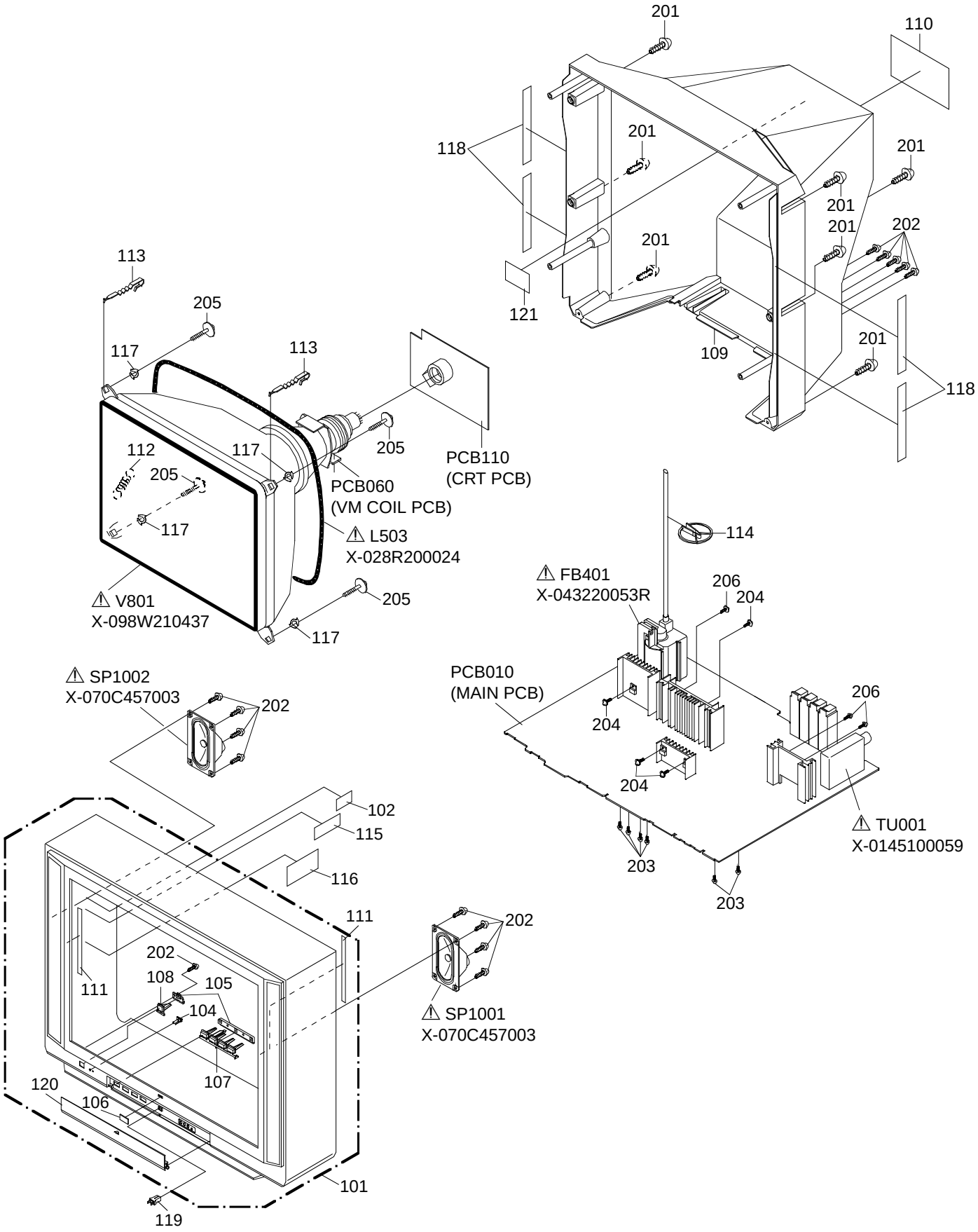
USING P.W. BOARD

Model / P.W.B ASS'Y	AV-20F703
MAIN PCB ASS'Y	X-A3K6060010
VM COIL PCB ASS'Y	X-A3K6060060
CRT PCB ASS'Y	X-A3K6060110

MECHANICAL REPLACEMENT PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
	101	X-A3K6060720	CABINET,FRONT ASSY	
	102	X-7230006818	SHEET,CAUTION	
	104	X-713WPA0140	GLASS,LED	
	105	X-735WPA0538	BUTTON,HOLDER	
	106	X-7235380003	BRAND,BADGE	
	107	X-735WPA0539	BUTTON,CHANNEL/VOLUME	
	108	X-735WPB0102	BUTTON,POWER	
	109	X-702WPAA270	CABINET,BACK	
	110	X-722538A019	SHEET,RATING	
	111	X-800WQ0A008	FELT SHEET	
	112	X-741WUA0001	SPRING,EARTH	
	113	X-762WPA0011	HOLDER,CRT WIRE	
	114	X-899HV3T000	HOLDER,ANODE WIRE	
	115	X-7220001107	SHEET,HWC	
	116	X-7220001119	SHEET,CSA WARNING	
	117	X-769WSA0011	WASHER CRT T = 0.5	
	118	X-800WQ00039	FELT SHEET	
	119	X-890LA20000	NC LATCH(LA-2)	
	120	X-712WPB0066	DOOR	
	121	X-726000A027	SHEET,CRT	
	201	X-8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
	202	X-8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
	203	X-8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
	204	X-8109I30A04	SCREW,TAP TITE(B) WH7	3x10
	205	X-8111J50D05	SCREW,TAPPING(A) GW22	5x35
	206	X-8107630804	SCREW,TAP TITE(S) BRAZIER	3x8

MECHANICAL EXPLODED VIEW



ELECTRICAL REPLACEMENT PARTS LIST

MAIN PCB ASS'Y

⚠	Symbol No.	Part No.	Part Name	Description
	PCB010	X-A3K6060010	MAIN PCB ASS'Y	TMA532B

VARIABLE RESISTORS

	VR502	X-V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4

RESISTORS

	R001	QRE121J-683Y	RC	68kΩ 1/2W
	R002	QRE121J-683Y	RC	68kΩ 1/2W
	R003	NRSA02J-334X	MG R	330kΩ 1/10W
	R006	NRSA02J-271X	MG R	270Ω 1/10W
	R007	NRSA02J-271X	MG R	270Ω 1/10W
	R101	NRSA02J-561X	MG R	560Ω 1/10W
	R102	NRSA02J-102X	MG R	1kΩ 1/10W
	R103	NRSA02J-105X	MG R	1MΩ 1/10W
	R104	NRSA02J-561X	MG R	560Ω 1/10W
	R106	QRE141J-101Y	RC	100Ω 1/4W
	R108	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R109	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R111	NRSA02J-470X	MG R	47Ω 1/10W
	R112	QRE141J-101Y	RC	100Ω 1/4W
	R114	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R115	NRSA02J-473X	MG R	47kΩ 1/10W
	R116	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R119	NRSA02J-473X	MG R	47kΩ 1/10W
	R121	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R122	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R123	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R124	NRSA02J-473X	MG R	47kΩ 1/10W
	R125	NRSA02J-473X	MG R	47kΩ 1/10W
	R126	NRSA02J-272X	MG R	2.7kΩ 1/10W
	R127	NRSA02J-102X	MG R	1kΩ 1/10W
	R128	QRE141J-333Y	RC	33kΩ 1/4W
	R129	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R130	NRSA02J-821X	MG R	820Ω 1/10W
	R131	NRSA02J-103X	MG R	10kΩ 1/10W
	R132	NRSA02J-333X	MG R	33kΩ 1/10W
	R133	NRSA02J-103X	MG R	10kΩ 1/10W
	R134	NRSA02J-103X	MG R	10kΩ 1/10W
	R138	NRSA02J-102X	MG R	1kΩ 1/10W
	R139	NRSA02J-102X	MG R	1kΩ 1/10W
	R140	NRSA02J-102X	MG R	1kΩ 1/10W
	R141	NRSA02J-102X	MG R	1kΩ 1/10W
	R142	QRE141J-103Y	RC	10kΩ 1/4W
	R144	NRSA02J-103X	MG R	10kΩ 1/10W
	R146	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R147	NRSA02J-102X	MG R	1kΩ 1/10W
	R148	QRE141J-102Y	RC	1kΩ 1/4W
	R149	QRE141J-102Y	RC	1kΩ 1/4W
	R150	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R151	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R155	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R156	NRSA02J-103X	MG R	10kΩ 1/10W
	R157	NRSA02J-103X	MG R	10kΩ 1/10W
	R201	NRSA02J-102X	MG R	1kΩ 1/10W
	R202	NRSA02J-102X	MG R	1kΩ 1/10W
	R203	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R204	NRSA02J-221X	MG R	220Ω 1/10W
	R205	NRSA02J-101X	MG R	100Ω 1/10W
	R209	NRSA02J-333X	MG R	33kΩ 1/10W
	R210	NRSA02J-221X	MG R	220Ω 1/10W
	R211	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R212	NRSA02J-332X	MG R	3.3kΩ 1/10W
	R213	NRSA02J-471X	MG R	470Ω 1/10W
	R214	NRSA02J-681X	MG R	680Ω 1/10W
	R215	NRSA02J-471X	MG R	470Ω 1/10W
	R217	NRSA02J-682X	MG R	6.8kΩ 1/10W
	R218	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R219	NRSA02J-391X	MG R	390Ω 1/10W
	R220	NRSA02J-121X	MG R	120Ω 1/10W
	R221	QRE141J-221Y	RC	220Ω 1/4W
	R223	NRSA02J-271X	MG R	270Ω 1/10W
	R299	X-R00106154J	RC	150kΩ 1/6W
	R301	NRSA02J-203X	MG R	20kΩ 1/10W
	R302	NRSA02J-203X	MG R	20kΩ 1/10W
	R303	NRSA02J-203X	MG R	20kΩ 1/10W
	R304	NRSA02J-203X	MG R	20kΩ 1/10W
	R305	NRSA02J-103X	MG R	10kΩ 1/10W

⚠	Symbol No.	Part No.	Part Name	Description

RESISTORS

	R314	NRSA02J-682X	MG R	6.8kΩ 1/10W
	R319	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R320	NRSA02J-682X	MG R	6.8kΩ 1/10W
	R321	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R322	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R323	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R324	NRSA02J-182X	MG R	1.8kΩ 1/10W
	R325	NRSA02J-182X	MG R	1.8kΩ 1/10W
	R326	QRE141J-101Y	RC	100Ω 1/4W
	R327	NRSA02J-104X	MG R	100kΩ 1/10W
	R328	NRSA02J-101X	MG R	100Ω 1/10W
	R330	QRE141J-103Y	RC	10kΩ 1/4W
	R331	NRSA02J-103X	MG R	10kΩ 1/10W
	R333	NRSA02J-103X	MG R	10kΩ 1/10W
	R335	QRE141J-102Y	RC	1kΩ 1/4W
	R403	NRSA02J-331X	MG R	330Ω 1/10W
	R406	X-R0L2U2221J	RC	220Ω 1/2W
	R407	NRSA02J-472X	MG R	4.7kΩ 1/10W
⚠	R410	X-R3X18A221J	R,METAL OXIDE	220Ω 2W
	R412	NRSA02J-682X	MG R	6.8kΩ 1/10W
	R413	X-R4X5T6153F	R,METAL	15kΩ 1/6W
	R414	X-R4X5T6393F	R,METAL	39kΩ 1/6W
	R415	NRSA02J-821X	MG R	820Ω 1/10W
⚠	R416	X-R002T23R9J	RC	3.9Ω 1/2W
	R417	NRSA02J-333X	MG R	33kΩ 1/10W
⚠	R420	X-R002T23R9J	RC	3.9Ω 1/2W
	R421	X-R0L2U2681J	RC	680Ω 1/2W
⚠	R426	X-R4X5T6472F	R,METAL	4.7kΩ 1/6W
	R427	QRE121J-102Y	RC	1kΩ 1/2W
	R428	QRE141J-101Y	RC	100Ω 1/4W
	R429	QRE121J-681Y	RC	680Ω 1/2W
	R430	QRE121J-683Y	RC	68kΩ 1/2W
	R432	QRE121J-822Y	RC	8.2kΩ 1/2W
	R433	QRE121J-681Y	RC	680Ω 1/2W
⚠	R436	X-R4X5T6183F	R,METAL	18kΩ 1/6W
	R437	QRE121J-4R7Y	RC	4.7Ω 1/2W
⚠	R438	X-R6558A2R7J	R,FUSE	2.7Ω 2W
⚠	R439	X-R3X181102J	R,METAL OXIDE	1kΩ 1W
⚠	R441	X-R4X5T6153F	R,METAL	15kΩ 1/6W
	R442	QRE141J-222Y	RC	2.2kΩ 1/4W
	R443	QRE121J-683Y	RC	68kΩ 1/2W
⚠	R452	X-R3X181151J	R,METAL OXIDE	150Ω 1W
	R453	NRSA02J-103X	MG R	10kΩ 1/10W
	R454	QRE121J-221Y	RC	220Ω 1/2W
⚠	R500	X-R0G3K2275K	RC	2.7MΩ 1/2W
⚠	R501	X-R5Y2CE1R2J	R,CEMENT	1.2Ω 7W
⚠	R502	X-R3X28A331J	R,METAL OXIDE	330Ω 2W
	R505	QRE141J-103Y	RC	10kΩ 1/4W
	R507	X-R0L2U2563J	RC	56kΩ 1/2W
	R508	QRE141J-682Y	RC	6.8kΩ 1/4W
	R510	NRSA02J-101X	MG R	100Ω 1/10W
	R511	NRSA02J-223X	MG R	22kΩ 1/10W
	R512	QRE141J-102Y	RC	1kΩ 1/4W
	R513	NRSA02J-103X	MG R	10kΩ 1/10W
	R515	QRE141J-103Y	RC	10kΩ 1/4W
	R516	NRSA02J-103X	MG R	10kΩ 1/10W
⚠	R517	X-R3X28B010J	R,METAL	1Ω 3W
	R518	QRE121J-155Y	RC	1.5MΩ 1/2W
	R519	QRE121J-102Y	RC	1kΩ 1/2W
	R520	QRE141J-391Y	RC	390Ω 1/4W
⚠	R521	X-R3X18A270J	R,METAL OXIDE	27Ω 2W
⚠	R522	X-R3X18A270J	R,METAL OXIDE	27Ω 2W
	R524	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R525	NRSA02J-473X	MG R	47kΩ 1/10W
⚠	R527	X-R3X18AR68J	R,METAL OXIDE	0.68Ω 2W
	R532	NRSA02J-152X	MG R	1.5kΩ 1/10W
	R533	NRSA02J-271X	MG R	270Ω 1/10W
	R535	QRE141J-103Y	RC	10kΩ 1/4W
	R536	QRE141J-683Y	RC	68kΩ 1/4W
	R537	QRE141J-104Y	RC	100kΩ 1/4W
	R539	QRE141J-125Y	RC	1.2MΩ 1/4W
	R540	QRE141J-125Y	RC	1.2MΩ 1/4W
⚠	R541	X-R63581R22J	R,FUSE	0.22Ω 1W
⚠	R542	X-R3X181R15J	R,METAL OXIDE	0.15Ω 1W
	R543	X-R00204102J	RC	1kΩ 1/4W
	R544	NRSA02J-271X	MG R	270Ω 1/10W
	R545	NRSA02J-151X	MG R	150Ω 1/10W
	R546	QRE141J-101Y	RC	100Ω 1/4W
	R547	QRE141J-101Y	RC	100Ω 1/4W
	R548	X-R00106103J	RC	10kΩ 1/6W
	R553	QRE121J-682Y	RC	6.8kΩ 1/2W

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTORS			
⚠	R554	X-R002T2104J	RC	100kΩ 1/2W
	R601	NRSA02J-184X	MG R	180kΩ 1/10W
	R602	NRSA02J-102X	MG R	1kΩ 1/10W
	R603	NRSA02J-332X	MG R	3.3kΩ 1/10W
	R604	NRSA02J-471X	MG R	470Ω 1/10W
	R605	NRSA02J-103X	MG R	10kΩ 1/10W
	R606	X-R00204101J	RC	100Ω 1/4W
	R607	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R608	QRE141J-271Y	RC	270Ω 1/4W
	R610	NRSA02J-272X	MG R	2.7kΩ 1/10W
	R612	NRSA02J-272X	MG R	2.7kΩ 1/10W
	R614	NRSA02J-272X	MG R	2.7kΩ 1/10W
	R615	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R616	NRSA02J-221X	MG R	220Ω 1/10W
	R617	NRSA02J-221X	MG R	220Ω 1/10W
	R618	NRSA02J-274X	MG R	270kΩ 1/10W
	R619	NRSA02J-333X	MG R	33kΩ 1/10W
	R621	X-R00204101J	RC	100Ω 1/4W
	R623	NRSA02J-103X	MG R	10kΩ 1/10W
	R624	NRSA02J-155X	MG R	1.5MΩ 1/10W
	R625	NRSA02J-154X	MG R	150kΩ 1/10W
	R629	X-R00204101J	RC	100Ω 1/4W
	R631	QRE121J-820Y	RC	82Ω 1/2W
	R635	NRSA02J-333X	MG R	33kΩ 1/10W
	R636	NRSA02J-222X	MG R	2.2kΩ 1/10W
	R638	QRE141J-102Y	RC	1kΩ 1/4W
	R640	NRSA02J-472X	MG R	4.7kΩ 1/10W
	R702	NRSA02J-750X	MG R	75Ω 1/10W
	R703	NRSA02J-750X	MG R	75Ω 1/10W
	R705	NRSA02J-750X	MG R	75Ω 1/10W
	R707	NRSA02J-750X	MG R	75Ω 1/10W
	R708	NRSA02J-750X	MG R	75Ω 1/10W
	R711	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R713	NRSA02J-680X	MG R	68Ω 1/10W
	R714	NRSA02J-471X	MG R	470Ω 1/10W
	R715	NRSA02J-102X	MG R	1kΩ 1/10W
	R716	NRSA02J-471X	MG R	470Ω 1/10W
	R717	NRSA02J-471X	MG R	470Ω 1/10W
	R720	QRE141J-101Y	RC	100Ω 1/4W
	R721	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R722	NRSA02J-152X	MG R	1.5kΩ 1/10W
	R723	NRSA02J-471X	MG R	470Ω 1/10W
	R724	NRSA02J-332X	MG R	3.3kΩ 1/10W
	R725	NRSA02J-332X	MG R	3.3kΩ 1/10W
	R726	NRSA02J-271X	MG R	270Ω 1/10W
	R727	NRSA02J-102X	MG R	1kΩ 1/10W
	R728	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R730	NRSA02J-184X	MG R	180kΩ 1/10W
	R731	NRSA02J-224X	MG R	220kΩ 1/10W
	R732	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R734	QRE141J-103Y	RC	10kΩ 1/4W
	R736	NRSA02J-102X	MG R	1kΩ 1/10W
	R737	NRSA02J-184X	MG R	180kΩ 1/10W
	R738	NRSA02J-224X	MG R	220kΩ 1/10W
	R739	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R740	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R741	NRSA02J-750X	MG R	75Ω 1/10W
	R747	NRSA02J-750X	MG R	75Ω 1/10W
	R748	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R749	NRSA02J-392X	MG R	3.9kΩ 1/10W
	R750	NRSA02J-750X	MG R	75Ω 1/10W
	R751	NRSA02J-102X	MG R	1kΩ 1/10W
	R752	NRSA02J-102X	MG R	1kΩ 1/10W
	R770	NRSA02J-471X	MG R	470Ω 1/10W
	R904	NRSA02J-471X	MG R	470Ω 1/10W
	R905	NRSA02J-471X	MG R	470Ω 1/10W
	R906	NRSA02J-224X	MG R	220kΩ 1/10W
	R907	QRE141J-221Y	RC	220Ω 1/4W
	R908	QRE141J-221Y	RC	220Ω 1/4W
	R1001	QRE121J-271Y	RC	270Ω 1/2W
	R1002	QRE121J-271Y	RC	270Ω 1/2W
	R1003	NRSA02J-562X	MG R	5.6kΩ 1/10W
	R1004	NRSA02J-562X	MG R	5.6kΩ 1/10W
	R1009	NRSA02J-103X	MG R	10kΩ 1/10W
	R1010	NRSA02J-103X	MG R	10kΩ 1/10W
	R1011	NRSA02J-103X	MG R	10kΩ 1/10W
	R1013	NRSA02J-103X	MG R	10kΩ 1/10W
	R1502	NRSA02J-101X	MG R	100Ω 1/10W
	R1503	NRSA02J-101X	MG R	100Ω 1/10W
	R1504	NRSA02J-822X	MG R	8.2kΩ 1/10W
	R1505	NRSA02J-682X	MG R	6.8kΩ 1/10W

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTORS			
	R1506	NRSA02J-332X	MG R	3.3kΩ 1/10W
	R1507	NRSA02J-102X	MG R	1kΩ 1/10W
	R1508	NRSA02J-682X	MG R	6.8kΩ 1/10W
	R1509	NRSA02J-473X	MG R	47kΩ 1/10W
	R1510	NRSA02J-473X	MG R	47kΩ 1/10W
	R1511	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R1513	NRSA02J-471X	MG R	470Ω 1/10W
	R1514	NRSA02J-471X	MG R	470Ω 1/10W
	R1515	NRSA02J-471X	MG R	470Ω 1/10W
	R1516	NRSA02J-102X	MG R	1kΩ 1/10W
	R1517	NRSA02J-470X	MG R	47Ω 1/10W
	R1518	NRSA02J-273X	MG R	27kΩ 1/10W
	R1519	NRSA02J-243X	MG R	24kΩ 1/10W
	R1520	NRSA02J-122X	MG R	1.2kΩ 1/10W
	R1521	QRE141J-102Y	RC	1kΩ 1/4W
	R1522	NRSA02J-102X	MG R	1kΩ 1/10W
	R1525	QRE141J-102Y	RC	1kΩ 1/4W
	R1527	QRE121J-153Y	RC	15kΩ 1/2W
	R1528	NRSA02J-913X	MG R	91kΩ 1/10W
	CAPACITORS			
	C001	NCB21HK-103X	CC	0.01µF 50V B
	C002	X-E02LT0471M	CE	470µF 6.3V
	C003	QEKJ1HM-225Z	CE	2.2µF 50V
	C004	X-P1S3T0223J	CP	0.022µF 50V
	C103	X-CS0RCH411D	CC	10pF 50V CH
	C105	NDC21HJ-151X	CC	150pF 50V CH
	C107	NCB21EK-104X	CC	0.1µF 25V B
	C108	NDC21HJ-680X	CC	68pF 50V CH
	C109	NDC21HJ-680X	CC	68pF 50V CH
	C111	QEKJ1HM-105Z	CE	1µF 50V
	C112	NCB21HK-222X	CC	0.0022µF 50V B
	C115	X-CHGTB04G2K	CC	180pF 50V B
	C117	QEKJ1HM-474Z	CE	0.47µF 50V
	C118	X-E02LF0222M	CE	2200µF 6.3V
	C121	NDC21HJ-101X	CC	100pF 50V CH
	C122	QEKJ1HM-105Z	CE	1µF 50V
	C123	QEKJ1CM-106Z	CE	10µF 16V
	C124	NCB21EK-104X	CC	0.1µF 25V B
	C125	X-CS0RCH411D	CC	10pF 50V CH
	C127	NDC21HJ-270X	CC	27pF 50V CH
	C128	NCB21HK-102X	CC	0.001µF 50V B
	C129	NDC21HJ-270X	CC	27pF 50V CH
	C132	NDC21HJ-821X	CC	820pF 50V CH
	C138	NCB21HK-103X	CC	0.01µF 50V B
	C139	NCB21HK-103X	CC	0.01µF 50V B
	C140	NCB21HK-103X	CC	0.01µF 50V B
	C143	NDC21HJ-101X	CC	100pF 50V CH
	C201	NCB21HK-103X	CC	0.01µF 50V B
	C202	NCB21HK-103X	CC	0.01µF 50V B
	C203	QETN1AM-107Z	CE	100µF 10V
	C204	X-E02L05100M	CE	10µF 50V
	C204	QETN1HM-106Z	CE	10µF 50V
	C206	NCB21EK-104X	CC	0.1µF 25V B
	C208	NCB21HK-103X	CC	0.01µF 50V B
	C209	QETN1HM-474Z	CE	0.47µF 50V
	C210	NCB21HK-222X	CC	0.0022µF 50V B
	C211	QETN1HM-224Z	CE	0.22µF 50V
	C212	NCB21HK-103X	CC	0.01µF 50V B
	C213	QETN1CM-107Z	CE	100µF 16V
	C214	QETN1HM-106Z	CE	10µF 50V
	C215	NDC21HJ-330X	CC	33pF 50V CH
	C216	QETN1HM-106Z	CE	10µF 50V
	C218	NCB21HK-103X	CC	0.01µF 50V B
	C220	NCB21HK-222X	CC	0.0022µF 50V B
	C221	NCB21HK-103X	CC	0.01µF 50V B
	C222	NCB21HK-103X	CC	0.01µF 50V B
	C228	NCB21HK-103X	CC	0.01µF 50V B
	C229	NDC21HJ-101X	CC	100pF 50V CH
	C303	QETN1CM-476Z	CE	47µF 16V
	C304	X-E62KU52R2M	CE	2.2µF 50V
	C305	X-E62KU52R2M	CE	2.2µF 50V
	C306	NCB21HK-332X	CC	0.0033µF 50V B
	C307	NCB21HK-332X	CC	0.0033µF 50V B
	C308	NCB21HK-333X	CC	0.033µF 50V B
	C309	NCB21HK-333X	CC	0.033µF 50V B
	C310	QEKJ1CM-106Z	CE	10µF 16V
	C311	QETN1HM-106Z	CE	10µF 50V
	C312	QEKJ1CM-106Z	CE	10µF 16V

⚠	Symbol No.	Part No.	Part Name	Description		
	CAPACITORS					
	C313	QETN1CM-107Z	CE	100µF	16V	
	C314	QEKJ1CM-106Z	CE	10µF	16V	
	C315	QETN1AM-227Z	CE	220µF	10V	
	C325	NCB21HK-103X	CC	0.01µF	50V	B
	C326	QETN1CM-476Z	CE	47µF	16V	
	C328	QEKJ1HM-225Z	CE	2.2µF	50V	
	C329	QEKJ1HM-225Z	CE	2.2µF	50V	
	C330	NCB21HK-223X	CC	0.022µF	50V	B
	C331	NCB21HK-223X	CC	0.022µF	50V	B
	C332	NCB21CK-474X	CC	0.47µF	16V	B
	C333	NCB21CK-474X	CC	0.47µF	16V	B
	C334	NCB21HK-333X	CC	0.033µF	50V	B
	C335	NCB21HK-333X	CC	0.033µF	50V	B
	C336	NDC21HJ-101X	CC	100pF	50V	CH
	C337	NDC21HJ-101X	CC	100pF	50V	CH
	C338	NCB21HK-102X	CC	0.001µF	50V	B
	C339	NCB21HK-103X	CC	0.01µF	50V	B
	C401	X-C0JTSL5K1J	CC	27pF	500V	SL
	C402	X-P235W1103J	CMP	0.01µF	100V	MKT
	C403	X-E02LT5220M	CE	22µF	50V	
	C405	NDC21HJ-561X	CC	560pF	50V	CH
	C406	X-E02LT5010M	CE	1µF	50V	
	C407	X-E02LT4101M	CE	100µF	35V	
⚠	C408	X-E5EZF3102M	CE	1000µF	25V	
	C409	X-E02LT5100M	CE	10µF	50V	
	C411	X-C0JTSL5H1J	CC	22pF	500V	SL
⚠	C413	X-E02LF4102M	CE	1000µF	35V	
	C414	X-C0JTB05L3K	CC	0.0033µF	500V	B
	C415	X-C0JTB0512K	CC	100pF	500V	B
	C417	X-P235W1224J	CMP	0.22µF	100V	MKT
	C418	X-P4J7F3394J	CMPP	0.39µF	250V	PMS
⚠	C420	X-P4N8FJ123H	CMPP	0.012µF	1.25KV	
	C425	X-C03L0R713K	CC	0.001µF	2KV	R
⚠	C426	X-E5EZFD220M	CE	22µF	250V	
	C427	X-P235W1104J	CMP	0.1µF	100V	MKT
	C428	QCBB1HK-122Y	CC	0.0012µF	50V	B
⚠	C430	X-E02LT8220M	CE	22µF	100V	
	C436	QETN1CM-476Z	CE	47µF	16V	
	C439	X-CHGTB0413K	CC	0.001µF	50V	B
⚠	C441	X-E02LT3471M	CE	470µF	25V	
⚠	C501	X-E02LF4102M	CE	1000µF	35V	
⚠	C502	X-C0JBB0713K	CC	0.001µF	2KV	B
⚠	C503	X-C0JBB0713K	CC	0.001µF	2KV	B
⚠	C504	X-E02LU5100M	CE	10µF	50V	
⚠	C505	X-P2472B224M	CMP	0.22µF	275V	PHE840
⚠	C506	X-P2472B104M	CMP	0.1µF	275V	PHE840
⚠	C507	X-E51CGC471M	CE	470µF	200V	
	C509	QETN1EM-476Z	CE	47µF	25V	
	C512	X-P235W1473J	CMP	0.047µF	100V	MKT
⚠	C514	X-CD39E0MH3M	CC	0.0022µF	250V	
	C516	X-C0JTB0513K	CC	0.001µF	500V	B
	C517	X-C03L0R7E3K	CC	0.0015µF	2KV	R
	C518	X-C0JTB0513K	CC	0.001µF	500V	B
⚠	C521	X-E62NFB221M	CE	220µF	160V	
⚠	C522	X-CD39E0MH3M	CC	0.0022µF	250V	
	C524	NCB21HK-223X	CC	0.022µF	50V	B
	C526	NDC21HJ-221X	CC	220pF	50V	CH
⚠	C527	X-E02LF2222M	CE	2200µF	16V	
	C528	X-E02LT2102M	CE	1000µF	16V	
	C530	QETN1AM-477Z	CE	470µF	10V	
⚠	C531	X-E02LT2471M	CE	470µF	16V	
	C532	X-E02LT0102M	CE	1000µF	6.3V	
	C533	QEKJ1CM-106Z	CE	10µF	16V	
	C535	X-C03L0R713K	CC	0.001µF	2KV	R
	C539	X-E02LT82R2M	CE	2.2µF	100V	
	C541	NCB21HK-103X	CC	0.01µF	50V	B
	C554	NCB21HK-223X	CC	0.022µF	50V	B
	C601	NCB21EK-104X	CC	0.1µF	25V	B
	C602	NCB21EK-104X	CC	0.1µF	25V	B
	C604	QETN1HM-105Z	CE	1µF	50V	
	C605	NCB21EK-104X	CC	0.1µF	25V	B
	C606	NCB21EK-104X	CC	0.1µF	25V	B
	C607	NCB21HK-103X	CC	0.01µF	50V	B
	C608	QETN1HM-105Z	CE	1µF	50V	
	C609	NCB21HK-223X	CC	0.022µF	50V	B
	C612	QEKJ1HM-225Z	CE	2.2µF	50V	
	C614	NCB21CK-474X	CC	0.47µF	16V	B
	C615	QETN1CM-107Z	CE	100µF	16V	
	C616	QETN1CM-476Z	CE	47µF	16V	
	C617	NCB21CK-105X	CC	1µF	16V	B
	C618	NCB21HK-103X	CC	0.01µF	50V	B

⚠	Symbol No.	Part No.	Part Name	Description		
	CAPACITORS					
	C619	X-E02LT0471M	CE	470µF	6.3V	
	C623	NCB21HK-103X	CC	0.01µF	50V	B
	C624	QETN1AM-107Z	CE	100µF	10V	
	C625	X-E62KU54R7M	CE	4.7µF	50V	
	C626	NCB21HK-123X	CC	0.012µF	50V	B
	C627	X-CS0RCH480D	CC	8pF	50V	CH
	C629	NCB21HK-222X	CC	0.0022µF	50V	B
	C630	QETN1HM-224Z	CE	0.22µF	50V	
	C631	NDC21HJ-221X	CC	220pF	50V	CH
	C632	NDC21HJ-221X	CC	220pF	50V	CH
	C633	NCB21HK-103X	CC	0.01µF	50V	B
	C634	NCB21EK-224X	CC	0.22µF	25V	B
	C636	NCB21EK-104X	CC	0.1µF	25V	B
	C637	X-CS0RCJ430C	CC	3pF	50V	CJ
	C640	X-E02LT2102M	CE	1000µF	16V	
	C641	NCB21HK-102X	CC	0.001µF	50V	B
	C644	QCBB1HK-104Y	CC	0.1µF	50V	B
	C645	QCBB1HK-104Y	CC	0.1µF	50V	B
	C646	QCBB1HK-104Y	CC	0.1µF	50V	B
	C704	X-E02LT2471M	CE	470µF	16V	
	C705	X-E00NU2470M	CE	47µF	16V	
	C706	X-CS0RCH480D	CC	8pF	50V	CH
	C707	NCB21CK-105X	CC	1µF	16V	B
	C708	NCB21CK-105X	CC	1µF	16V	B
	C711	QETN1CM-107Z	CE	100µF	16V	
	C712	NCB21CK-105X	CC	1µF	16V	B
	C713	QEKJ1CM-106Z	CE	10µF	16V	
	C714	QEKJ1CM-106Z	CE	10µF	16V	
	C715	X-E02LT2471M	CE	470µF	16V	
	C720	NDC21HJ-330X	CC	33pF	50V	CH
	C721	NCB21CK-105X	CC	1µF	16V	B
	C722	NCB21CK-105X	CC	1µF	16V	B
	C724	QEKJ1HM-105Z	CE	1µF	50V	
	C725	QEKJ1HM-105Z	CE	1µF	50V	
	C726	NCB21HK-562X	CC	0.0056µF	50V	B
	C727	NCB21HK-562X	CC	0.0056µF	50V	B
	C728	NCB21CK-105X	CC	1µF	16V	B
	C729	X-E00NU5R47M	CE	0.47µF	50V	
	C730	NCB21EK-104X	CC	0.1µF	25V	B
	C731	NCB21HK-103X	CC	0.01µF	50V	B
	C733	QETN1CM-107Z	CE	100µF	16V	
	C734	NCB21HK-103X	CC	0.01µF	50V	B
	C735	QEKJ1CM-226Z	CE	22µF	16V	
	C737	NCB21CK-105X	CC	1µF	16V	B
	C738	NCB21CK-105X	CC	1µF	16V	B
	C739	NCB21CK-105X	CC	1µF	16V	B
	C740	NCB21HK-562X	CC	0.0056µF	50V	B
	C741	QETN1HM-335Z	CE	3.3µF	50V	
	C742	NCB21HK-562X	CC	0.0056µF	50V	B
	C743	NCB21HK-562X	CC	0.0056µF	50V	B
	C744	NCB21HK-562X	CC	0.0056µF	50V	B
	C745	NCB21CK-105X	CC	1µF	16V	B
	C746	NCB21CK-105X	CC	1µF	16V	B
	C747	QCFB1HZ-105Y	CC	1µF	50V	F
	C748	NCB21EK-104X	CC	0.1µF	25V	B
	C750	NCB21CK-105X	CC	1µF	16V	B
	C793	NDC21HJ-330X	CC	33pF	50V	CH
	C917	QEKJ1HM-475Z	CE	4.7µF	50V	
	C918	QEKJ1HM-475Z	CE	4.7µF	50V	
	C919	QEKJ1HM-225Z	CE	2.2µF	50V	
	C920	NDC21HJ-101X	CC	100pF	50V	CH
	C921	QETN1HM-106Z	CE	10µF	50V	
	C922	NCB21HK-223X	CC	0.022µF	50V	B
	C923	NDC21HJ-101X	CC	100pF	50V	CH
	C924	QETN1AM-107Z	CE	100µF	10V	
	C925	QEKJ1HM-334Z	CE	0.33µF	50V	
	C926	NCB21HK-473X	CC	0.047µF	50V	B
	C927	NCB21HK-223X	CC	0.022µF	50V	B
	C928	NCB21EK-104X	CC	0.1µF	25V	B
	C929	QEKJ1HM-335Z	CE	3.3µF	50V	
	C930	NCB21EK-104X	CC	0.1µF	25V	B
	C931	NCB21EK-104X	CC	0.1µF	25V	B
	C932	NCB21EK-104X	CC	0.1µF	25V	B
	C935	X-E02LT54R7M	CE	4.7µF	50V	
	C1001	QETN1HM-106Z	CE	10µF	50V	
	C1002	QETN1HM-106Z	CE	10µF	50V	
	C1003	X-E02LT3471M	CE	470µF	25V	
	C1004	X-E02LF3102M	CE	1000µF	25V	
	C1007	QETN1HM-226Z	CE	22µF	50V	
	C1008	QETN1HM-225Z	CE	2.2µF	50V	
	C1009	X-E02LF3102M	CE	1000µF	25V	

⚠	Symbol No.	Part No.	Part Name	Description		
	CAPACITORS					
	C1010	NCB21HK-103X	CC	0.01µF	50V	B
	C1011	X-E02LT3221M	CE	220µF	25V	
	C1012	NCB21HK-103X	CC	0.01µF	50V	B
	C1501	QETN0JM-107Z	CE	100µF	6.3V	
	C1502	QETN0JM-107Z	CE	100µF	6.3V	
	C1503	NCB21EK-104X	CC	0.1µF	25V	B
	C1504	NCB21EK-104X	CC	0.1µF	25V	B
	C1505	NCB21CK-105X	CC	1µF	16V	B
	C1506	NCB21EK-104X	CC	0.1µF	25V	B
	C1507	NCB21EK-104X	CC	0.1µF	25V	B
	C1508	NCB21EK-104X	CC	0.1µF	25V	B
	C1509	NCF21HZ-104X	CC	0.1µF	50V	F
	C1510	QETN0JM-107Z	CE	100µF	6.3V	
	C1512	NCB21EK-104X	CC	0.1µF	25V	B
	C1513	NCB21EK-104X	CC	0.1µF	25V	B
	C1514	NCB21EK-104X	CC	0.1µF	25V	B
	C1515	NCB21EK-104X	CC	0.1µF	25V	B
	C1516	QEKJ1CM-106Z	CE	10µF	16V	
	C1517	NDC21HJ-101X	CC	100pF	50V	CH
	C1518	QEKJ1HM-105Z	CE	1µF	50V	
	C1519	NCB21EK-104X	CC	0.1µF	25V	B
	C1521	NCB21EK-104X	CC	0.1µF	25V	B
	C1523	NDC21HJ-121X	CC	120pF	50V	CH
	C1525	QETN0JM-107Z	CE	100µF	6.3V	
	C1526	NCB21HK-103X	CC	0.01µF	50V	B
	C1527	X-CHGTX02Q3M	CC	0.0047µF	16V	X
	C1528	QETN1CM-107Z	CE	100µF	16V	
	C1530	X-E00NU53R3M	CE	3.3µF	50V	
	C1531	NCB21HK-103X	CC	0.01µF	50V	B
	C1533	NDC21HJ-220X	CC	22pF	50V	CH
	C1535	NCB21EK-104X	CC	0.1µF	25V	B
	DIODES					
	D001	X-D97U03301A	ZENER	MTZJ33AT-77		
	D102	1SS133-T2	SILICON			
	D103	1SS133-T2	SILICON			
	D107	1SS133-T2	SILICON			
	D109	X-21721150	LED	SLR-342VCT32		
	D201	X-D97U01201B	ZENER	MTZJ12BT-77		
	D402	X-D2WT011E10	SILICON	11E1-EIC		
	D403	X-D97U03001B	ZENER	MTZJ30BT-77		
	D404	X-D97U09R11B	ZENER	MTZJ9.1BT-77		
⚠	D405	X-D2WTAU02A0	SILICON	AU02A-EIC		
⚠	D406	X-D97U05R61B	ZENER	MTZJ5.6BT-77		
⚠	D407	X-D2WTAU02A0	SILICON	AU02A-EIC		
	D410	X-D97U03001B	ZENER	MTZJ30BT-77		
⚠	D411	X-D28TELS6N6	RECTIFER	10ELS6N-TA1B2		
	D414	X-D2WT011E10	SILICON	11E1-EIC		
	D415	X-D2WT011E10	SILICON	11E1-EIC		
⚠	D416	X-D28TELS6N6	RECTIFER	10ELS6N-TA1B2		
⚠	D501	X-D2WTRM11C0	SILICON	RM11C-EIC		
⚠	D502	X-D2WTRM11C0	SILICON	RM11C-EIC		
⚠	D503	X-D2WTRM11C0	SILICON	RM11C-EIC		
⚠	D504	X-D2WTRM11C0	SILICON	RM11C-EIC		
⚠	D505	X-D28F30DF60	RECTIFER	30DF6-FC		
⚠	D506	X-D2WXN49370	SILICON	1N4937		
	D507	1SS133-T2	SILICON			
⚠	D509	X-D97U01801B	ZENER	MTZJ18BT-77		
⚠	D510	X-D2BFRU4AM0	SILICON	RU-4AM		
⚠	D511	X-D2WXN49370	SILICON	1N4937		
⚠	D512	X-D2WXB290S0	SILICON	SB290S		
	D513	MTZJ5.6B-T2	ZENER			
⚠	D514	X-D2WXB290S0	SILICON	SB290S		
	D515	X-D97U01501B	ZENER	MTZJ15BT-77		
	D516	1SS133-T2	SILICON			
	D517	1SS133-T2	SILICON			
	D519	1SS133-T2	SILICON			
	D520	1SS133-T2	SILICON			
⚠	D523	X-D97U01801B	ZENER	MTZJ18BT-77		
	D524	1SS133-T2	SILICON			
	D525	X-D97U08R21B	ZENER	MTZJ8.2BT-77		
	D528	MTZJ5.6B-T2	ZENER			
	D602	X-D97U06R21B	ZENER	MTZJ6.2BT-77		
	D603	X-D97U06R21B	ZENER	MTZJ6.2BT-77		
	D604	X-D97U06R21B	ZENER	MTZJ6.2BT-77		
	D605	X-D2WT011E10	SILICON	11E1-EIC		
	D606	MTZJ5.6B-T2	ZENER			
	D608	1SS133-T2	SILICON			
	D609	MTZJ5.6B-T2	ZENER			

⚠	Symbol No.	Part No.	Part Name	Description
	DIODES			
	D610	MTZJ5.6B-T2	ZENER	
	D611	1SS133-T2	SILICON	
	D612	1SS133-T2	SILICON	
	D613	1SS133-T2	SILICON	
	D614	1SS133-T2	SILICON	
	D615	1SS133-T2	SILICON	
	D617	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D618	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D619	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D620	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D621	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D622	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D623	X-D97U01201B	ZENER	MTZJ12BT-77
	D711	X-D97U06R21B	ZENER	MTZJ6.2BT-77
	D1003	MTZJ5.6B-T2	ZENER	
	ICS			
	IC101	X-I56F07075A	IC	OEC7075A
	IC103	X-I9UJ0T600C	IC	PST600C
	IC198	X-A3K606Z015	IC	S-24C16AFJA-TB-01
	IC201	X-I05DC12530	IC	TB1253N
	IC301	X-I0QF021500	IC	NJM2150AM
	IC303	X-I06DF62420	IC	M62420SP
⚠	IC401	X-I01TD55220	IC	AN5522
⚠	IC502	X-I1KA97809A	IC	KIA7809API
⚠	IC503	X-I1KA97805A	IC	KIA7805API
⚠	IC504	X-0002E00610	PHOTO COUPLER	LTV-817M-VB
	IC701	X-I0UD013110	IC	MM1311AD
	IC902	X-I01FF58290	IC	AN5829S
⚠	IC1001	X-I0FSP52760	IC	AN5276
	IC1501	X-I03FE76600	IC	LA76600M-TLM
	TRANSISTORS			
	Q101	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q102	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q103	X-TNAAB05003	COMPOUND	KRC102SRTK
	Q108	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q109	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q201	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q202	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q203	X-TAAA1504SY	SILICON	KTA1504S_Y_RTK
	Q204	X-T8AA03881S	SILICON	KTC3881S-RTK
⚠	Q402	X-TC5T01627Y	SILICON	2SC1627_Y(TPE2)
⚠	Q405	X-TDUU024990	SILICON	2SD2499(LB0EC1)
	Q406	X-TPYJD05001	COMPOUND	DTA144EKAT146
	Q407	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
⚠	Q501	X-TCAT032034	SILICON	KTC3203_Y-AT
⚠	Q502	X-T220033260	FET	2SK3326(2)
⚠	Q503	X-TA3T1371A0	SILICON	2SA1371(D,E)-AE
	Q504	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)
⚠	Q505	X-TC3T029090	SILICON	2SC2909(S,T)-AA
⚠	Q506	X-TAAA1504SY	SILICON	KTA1504S_Y_RTK
⚠	Q507	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)
⚠	Q508	X-TAAT01273Y	SILICON	KTA1273_Y
	Q509	X-TNAAB05003	COMPOUND	KRC102SRTK
⚠	Q510	X-TC10013840	SILICON	2SC13840W
⚠	Q512	X-TA3T016240	SILICON	2SA1624-AA
⚠	Q514	X-TCAT032034	SILICON	KTC3203_Y-AT
	Q601	X-TPAAB05001	COMPOUND	KRA102SRTK
	Q603	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q604	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q701	X-TCAA3875SY	SILICON	KTC3875S_Y_RT
	Q704	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q705	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q709	X-TAAA1504SY	SILICON	KTA1504S_Y_RTK
	Q1001	X-TNAAJ05003	COMPOUND	KRC111SRT
	Q1503	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q1504	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q1505	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK
	Q1506	X-TAAA1504SY	SILICON	KTA1504S_Y_RTK
	Q1507	X-TCAA3875SY	SILICON	KTC3875S_Y_RTK

⚠	Symbol No.	Part No.	Part Name	Description
	COILS			
	L002	X-021673101K	COIL	100µH
	L201	X-02167F101J	COIL	100µH
	L203	X-021LA61R5K	COIL	1.5µH
	L204	X-021LA6150K	COIL	15µH
	L205	X-021673470K	COIL	47µH
	L301	X-021LA6470K	COIL	47µH
	L302	X-021LA6220K	COIL	22µH
⚠	L402	X-022100027A	COIL,LINEARITY	ELH5L4113
⚠	L501	X-029T000097	COIL,LINE FILTER	1R5A123F28Y
	L601	X-021673470K	COIL	47µH
	L602	X-021673101K	COIL	100µH
	L603	X-02167F470J	COIL	47µH
	L604	X-02167F470J	COIL	47µH
	L701	X-02167D101K	COIL	100µH
	L703	X-02167F470J	COIL	47µH
	L901	X-021LA6220K	COIL	22µH
	L1503	X-021673221K	COIL	220µH
	L1505	X-02167F150J	COIL	15µH
	L1510	X-02167F150J	COIL	15µH
	L1511	X-02167F150J	COIL	15µH
	L1512	X-021LA6220J	COIL	22µH
	TRANSFORMERS			
⚠	FB401	X-043220053R	FLYBACK	3220053R
	T401	X-045013003J	HORIZONTAL DRIVE	ETH14Y47AY
⚠	T501	X-048140066S	SWITCHING	8140066S
	JACKS			
	J701	X-060J431019	RCA JACK	MSP-213V2-432PBSN
	J702	X-063Q700002	JACK	YKF51-5503
	J703	X-060J431019	RCA JACK	MSP-213V2-432PBSN
	J704	X-060J411024	RCA JACK	MSP-213V1-652PBSN
	J705	X-060G401047	RCA JACK	HTJ-032-03AY
	J706	X-060G401046	RCA JACK	HTJ-032-03AW
	J707	X-060G401039	RCA JACK	HTJ-032-03AR
	J708	X-060J431019	RCA JACK	MSP-213V2-432PBSN
⚠	J1001	X-060J131015	HEADPHONE JACK	MSJ-2000
	SWITCHES			
	SW101	X-0504201T31	SWITCH,TACT	SKHVBED010
	SW102	X-0504201T31	SWITCH,TACT	SKHVBED010
	SW103	X-0504201T31	SWITCH,TACT	SKHVBED010
	SW104	X-0504201T31	SWITCH,TACT	SKHVBED010
	SW105	X-0504201T31	SWITCH,TACT	SKHVBED010
	CONNECTORS			
	CP101	X-694270139	CONNECTOR PCB SIDE	173979-7
⚠	CP401	X-069X460029	CONNECTOR PCB SIDE	B06B-DVS
⚠	CP502	X-069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
	CP507	X-069D01001A	CONNECTOR PCB SIDE	003P-2100
	CP508	X-069D01001A	CONNECTOR PCB SIDE	003P-2100
	CP1001	X-069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
	OTHERS			
	B401	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B402	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B501	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B502	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B504	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠	CD501	X-120R415902	CORD,AC BUSH	0R415902
	CD801	X-06CU2A3401	CORD,CONNECTOR	CU2A3401
	CD851	X-06CU253401	CORD,CONNECTOR	CU253401
	CD701A	X-06CH243001	CORD,CONNECTOR	CH243001
	CF201	X-1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
	CF202	X-1022045R74	FILTER,SAW	SAFGP45M7VFGZ00B
	CF203	X-1012T4R519	FILTER,CERAMIC TRAP	TPSRA4M50C00-A0
	CF204	X-1012T04702	FILTER,CERAMIC TRAP	MKT47.3MC110P-TF
	CP801A	X-067U010049	WIRE HOLDER	B2013H02-10P
	CP851A	X-067U005049	WIRE HOLDER	B2013H02-5P
	EL001	X-124120301A	EYE LET	XRY20X30BD
	EL002	X-124116281A	EYE LET	XRY16X28BD
⚠	F501	X-081PC6R305	FUSE	51MS063L
	FH501	X-06710T0006	HOLDER,FUSE	EYF-52BC

⚠	Symbol No.	Part No.	Part Name	Description
	OTHERS			
	FH502	X-06710T0006	HOLDER,FUSE	EYF-52BC
	OS101	X-773071001	REMOTE RECEIVER	RPM7138-H5
⚠	RY501	X-0560V20115	RELAY	ALKS321
⚠	TH501	X-DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
⚠	TU001	X-145100059	TUNER,VHF-UHF	ENV56DB6G3
	X101	X-100CT8R005	CRYSTAL	HC-49/U-S
	X601	X-100CT3R505	CRYSTAL	HC-49/C

VM COIL PCB ASS'Y

⚠	Symbol No.	Part No.	Part Name	Description
	PCB060	X-A3K6060060	VM COIL PCB ASS'Y	TEAA93A
	OTHERS			
	CD852	X-06CU232001	CORD,CONNECTOR	CU232001
	CP852B	X-067U003029	WIRE HOLDER	B2013H02-3P

CRT PCB ASS'Y

⚠	Symbol No.	Part No.	Part Name	Description
	PCB110	X-A3K6060110	CRT PCB ASS'Y	TCA391A
	RESISTORS			
	R801	QRE141J-101Y	RC	100Ω 1/4W
	R802	QRE141J-101Y	RC	100Ω 1/4W
	R803	QRE141J-101Y	RC	100Ω 1/4W
⚠	R804	X-R3X18A123J	R,METAL OXIDE	12kΩ 2W
⚠	R806	X-R3X18A123J	R,METAL OXIDE	12kΩ 2W
⚠	R808	X-R3X18A123J	R,METAL OXIDE	12kΩ 2W
	R809	QRE141J-101Y	RC	100Ω 1/4W
	R810	QRE141J-182Y	RC	1.8kΩ 1/4W
	R811	QRE141J-182Y	RC	1.8kΩ 1/4W
	R812	QRE141J-182Y	RC	1.8kΩ 1/4W
	R813	QRE141J-221Y	RC	220Ω 1/4W
	R814	QRE141J-221Y	RC	220Ω 1/4W
	R815	QRE141J-221Y	RC	220Ω 1/4W
	R817	QRE141J-331Y	RC	330Ω 1/4W
	R819	QRE141J-331Y	RC	330Ω 1/4W
	R821	QRE141J-331Y	RC	330Ω 1/4W
	R828	QRE141J-272Y	RC	2.7kΩ 1/4W
	R829	QRE141J-272Y	RC	2.7kΩ 1/4W
	R830	QRE141J-272Y	RC	2.7kΩ 1/4W
	R851	QRE121J-121Y	RC	120Ω 1/2W
	R852	QRE141J-222Y	RC	2.2kΩ 1/4W
	R853	QRE141J-223Y	RC	22kΩ 1/4W
	R854	QRE141J-333Y	RC	33kΩ 1/4W
	R855	X-R65582331J	R,FUSE	330Ω 1/2W
	R856	QRE141J-102Y	RC	1kΩ 1/4W
	R857	QRE121J-471Y	RC	470Ω 1/2W
	R858	QRE141J-101Y	RC	100Ω 1/4W
	R859	QRE141J-272Y	RC	2.7kΩ 1/4W
	R860	QRE141J-330Y	RC	33Ω 1/4W
	R861	QRE141J-333Y	RC	33kΩ 1/4W
	R862	QRE141J-392Y	RC	3.9kΩ 1/4W
	R863	QRE141J-392Y	RC	3.9kΩ 1/4W
	R864	QRE141J-393Y	RC	39kΩ 1/4W
	R865	QRE141J-563Y	RC	56kΩ 1/4W
	R866	QRE141J-222Y	RC	2.2kΩ 1/4W
	R867	QRE121J-100Y	RC	10Ω 1/2W
	R868	QRE141J-820Y	RC	82Ω 1/4W
	R869	QRE141J-820Y	RC	82Ω 1/4W
	R870	QRE141J-152Y	RC	1.5kΩ 1/4W
	R871	QRE141J-152Y	RC	1.5kΩ 1/4W
	R872	QRE141J-122Y	RC	1.2kΩ 1/4W
	R873	QRE141J-683Y	RC	68kΩ 1/4W

⚠	Symbol No.	Part No.	Part Name	Description		
	RESISTORS					
	R874	QRE141J-683Y	RC	68kΩ	1/4W	
	R875	QRE141J-122Y	RC	1.2kΩ	1/4W	
	R876	QRE141J-123Y	RC	12kΩ	1/4W	
	R877	QRE121J-680Y	RC	68Ω	1/2W	
	R878	QRE121J-680Y	RC	68Ω	1/2W	
	R879	QRE121J-2R7Y	RC	2.7Ω	1/2W	
	R880	QRE121J-2R7Y	RC	2.7Ω	1/2W	
⚠	R881	X-R3X18A150J	R,METAL OXIDE	15Ω	2W	
	CAPACITORS					
	C804	X-CQGTCH4K2J	CC	270pF	50V	CH
	C805	X-CQGTCH4H2J	CC	220pF	50V	CH
	C806	X-CQGTCH4Q2J	CC	470pF	50V	CH
	C808	X-C0JBB0713K	CC	0.001µF	2KV	B
	C809	X-E02LTD2R2M	CE	2.2µF	250V	
	C813	X-P1S3T0222J	CP	0.0022µF	50V	
	C815	X-CHGTB04L2K	CC	330pF	50V	B
	C823	X-CHGTB0412J	CC	100pF	50V	B
	C851	X-P1S3T0822J	CP	0.0082µF	50V	
	C852	X-E02LT2470M	CE	47µF	16V	
	C853	X-E02LT2470M	CE	47µF	16V	
	C854	X-E02LTB100M	CE	10µF	160V	
	C855	X-CQGTCH4S2J	CC	560pF	50V	CH
	C856	QCBB1HK-103Y	CC	0.01µF	50V	B
	C857	X-CHGTB0413K	CC	0.001µF	50V	B
	C858	X-C0JTCH412J	CC	100pF	50V	CH
	C859	X-C0JTCH412J	CC	100pF	50V	CH
	C860	X-C0JTB05Q3K	CC	0.0047µF	500V	B
	C861	X-C0JTB05Q3K	CC	0.0047µF	500V	B
	C862	X-E0ELFB470M	CE	47µF	160V	
	C863	X-E0ELFB470M	CE	47µF	160V	
	C864	X-E02LTB100M	CE	10µF	160V	
	C865	X-C0JTB05E2K	CC	150pF	500V	B
	C866	X-E02LT2471M	CE	470µF	16V	
	C867	QCBB1HK-104Y	CC	0.1µF	50V	B
	C868	X-E02LT5R47M	CE	0.47µF	50V	
	DIODES					
	D801	1SS133-T2	SILICON			
	D802	1SS133-T2	SILICON			
	D803	1SS133-T2	SILICON			
	D804	1SS133-T2	SILICON			
	D805	1SS133-T2	SILICON			
	D806	1SS133-T2	SILICON			
	D852	1SS133-T2	SILICON			
	D853	1SS133-T2	SILICON			
	D854	1SS133-T2	SILICON			
	D855	1SS133-T2	SILICON			
	D856	1SS133-T2	SILICON			
	D857	X-D28TELS2N2	RECTIFER	10ELS2N-TA1B2		
	D858	X-D28TELS2N2	RECTIFER	10ELS2N-TA1B2		
	ICS					
⚠	IC851	X-I1KJ98L120	IC	KIA78L12BP-AT		
	TRANSISTORS					
⚠	Q801	X-TCA0042170	SILICON	KTC4217(O,Y)		
⚠	Q801	X-TC3Q026210	SILICON	2SC2621(D,E)-RAC		
⚠	Q802	X-TCA0042170	SILICON	KTC4217(O,Y)		
⚠	Q802	X-TC3Q026210	SILICON	2SC2621(D,E)-RAC		
⚠	Q803	X-TCA0042170	SILICON	KTC4217(O,Y)		
⚠	Q803	X-TC3Q026210	SILICON	2SC2621(D,E)-RAC		
⚠	Q810	X-TCATC3199Y	SILICON	KTC3199_Y-AT		
⚠	Q811	X-TCATC3199Y	SILICON	KTC3199_Y-AT		
⚠	Q812	X-TCATC3199Y	SILICON	KTC3199_Y-AT		
	Q851	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)		
	Q852	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)		
	Q853	X-TCUT00752Y	SILICON	2SC752(G)(TM)_Y		
	Q854	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)		
	Q855	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)		
	Q856	X-TCATC31980	SILICON	KTC3198-AT(Y,GR)		
	Q857	X-TAATA12660	SILICON	KTA1266-AT(Y,GR)		
	Q858	X-TAU0018370	SILICON	2SA1837		
	Q859	X-TCU0047930	SILICON	2SC4793		

⚠	Symbol No.	Part No.	Part Name	Description
	COILS			
	L802	X-021673151K	COIL	150µH
	L803	X-021673151K	COIL	150µH
	L804	X-021673151K	COIL	150µH
	OTHERS			
	B801	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B802	X-024H003553	CORE,BEADS	W5RH3.5*5*1.0
	B802	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B803	X-024H003553	CORE,BEADS	W5RH3.5*5*1.0
	B803	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B851	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B852	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B853	X-024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	CD811	X-06CH013801	CORD,CONNECTOR	CH013801
	CP801	X-069S2A0629	CONNECTOR PCB SIDE	A2001WV2-10P
	CP803	X-069S330010	CONNECTOR PCB SIDE	A2361WV2-3P
	CP804	X-069W010010	CONNECTOR PCB SIDE	005P-2100
	CP851	X-069S250629	CONNECTOR PCB SIDE	A2001WV2-5P
	CP852	X-069S230629	CONNECTOR PCB SIDE	A2001WV2-3P
⚠	J801	X-066C130017	SOCKET,CATHODE RAY TUBE	CVT3275-5101

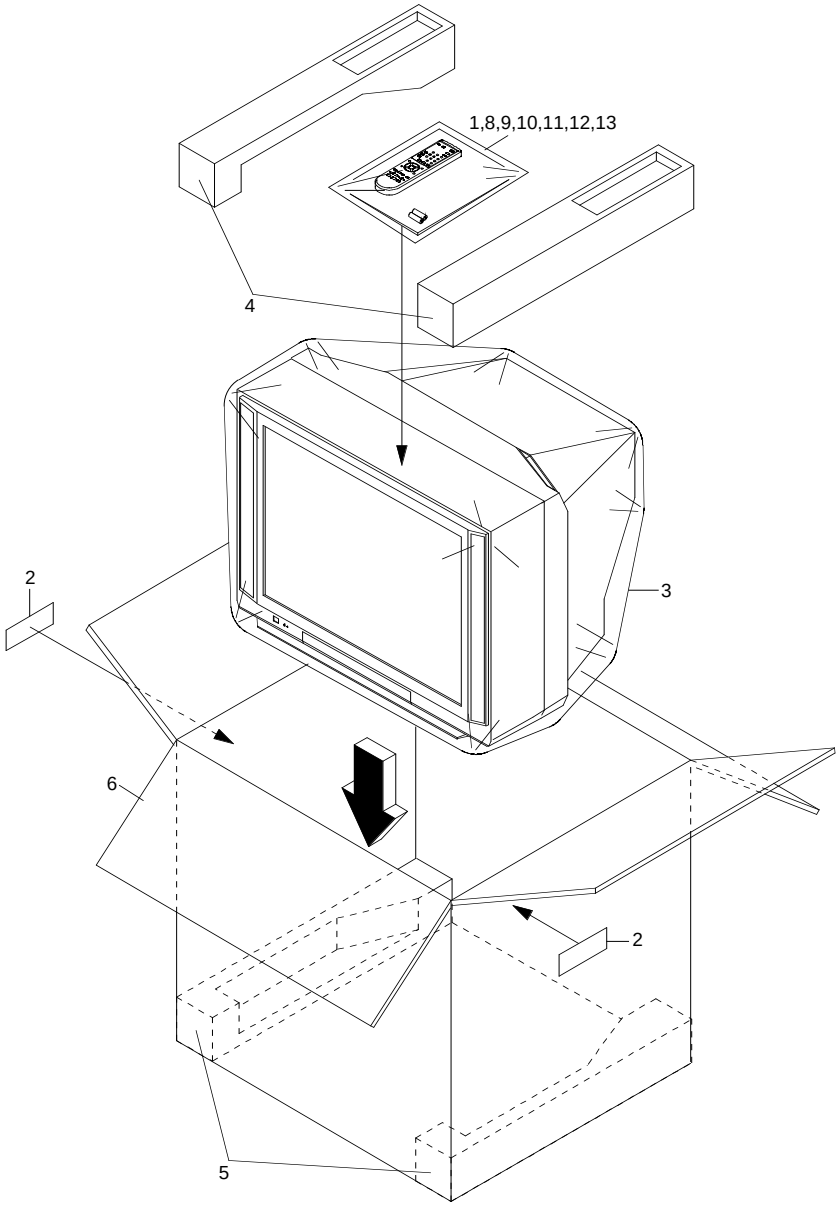
MISCELLANEOUS

⚠	Symbol No.	Part No.	Part Name	Description
	COILS			
⚠	L503	X-028R200024	COIL,DEGAUSS	8R200024
	OTHERS			
	CD803	X-06CP83035A	CORD,CONNECTOR	CP83035A
	CD1001	X-06CU14411A	CORD,CONNECTOR	CU14411A
⚠	SP1001	X-070C457003	SPEAKER	SG05K07BRA
⚠	SP1002	X-070C457003	SPEAKER	SG05K07BRA
⚠	V801	X-098W210437	CRT W/DY	A51LVV896X07(O)

REMOTE CONTROL UNIT PARTS LIST (RM-C309G)

⚠	Ref. No.	Part No.	Part Name	Description
		UR52EC1286C	BATTERY COVER	

PACKING



ACCESSORY REPLACEMENT PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description
1	X-076G0EC010	TRANSMITTER	EUR524339(RM-C309G)
2	X-723000B871	SHEET,UPC	
3	X-791WHA0085	LAMIFILM,BAG	
4	X-792WHA0321	PACKAGE,TOP	
5	X-792WHA0322	PACKAGE,BOTTOM	
6	X-793WCDB254	GIFT BOX	
8	X-JB5KD500	POLYBAG,INSTRUCTION(RED CAUTION)	
9	X-J3L30301	INSTRUCTION BOOK	
10	X-J5500112	GUARANTEE CARD	
11	X-J5500115	SERVICE STATION LIST	
12	X-J5500117	REGISTRATION CARD	
13	X-J5501202	GUARANTEE CARD	

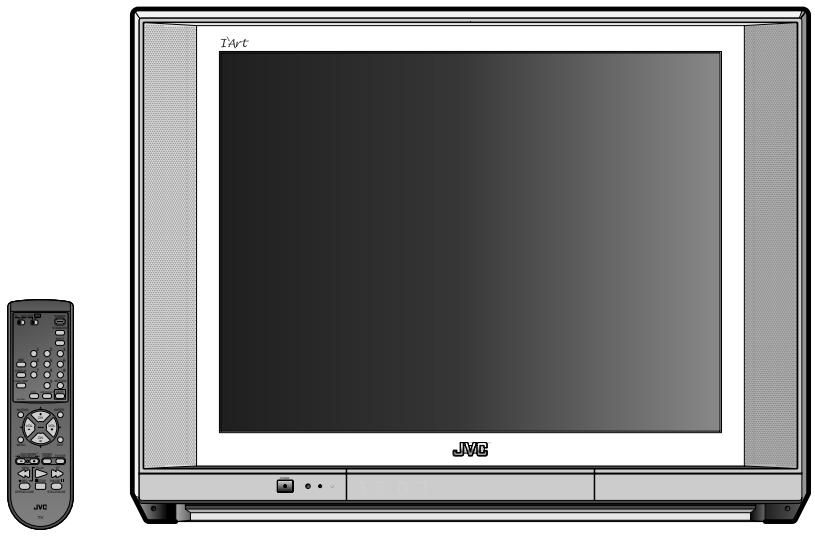
JVC

SCHEMATIC DIAGRAMS

COLOR TELEVISION

AV-20F703

CD-ROM No. SML200206



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No. 52001
May 2002

AV-20F703 STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

2.INDICATION OF PARTS SYMBOL [EXAMPLE]

●In the PC board :R1209→R209

3.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND.

Please, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

◇ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

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MAIN PCB CHROMA/IF SCHEMATIC DIAGRAM
MAIN PCB DEFLECTION SCHEMATIC DIAGRAM
MAIN PCB POWER SCHEMATIC DIAGRAM
MAIN PCB SOUND SCHEMATIC DIAGRAM
MAIN PCB AV SCHEMATIC DIAGRAM
MAIN PCB COMB/FILTER SCHEMATIC DIAGRAM
CRT PCB AND VM COIL PCB SCHEMATIC DIAGRAMS

PATTERN DIAGRAMS 2-21

MAIN PCB PATTERN
CRT PCB PATTERN
VM COIL PCB PATTERN

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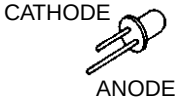
SEMICONDUCTOR BASE CONNECTIONS

DIODE

1N4937
1SS133T-77
AU02A-EIC
MTZJ12B T-77
MTZJ15B T-77
MTZJ18B T-77
MTZJ30B T-77
MTZJ33A T-77
MTZJ5.6B T-77
MTZJ6.2B T-77
MTZJ8.2B T-77
MTZJ9.1BT-77

10ELS6N-TA1B2
11E1-EIC
30DF6-FC

10ELS2N-TA1B2
RM11C-EIC
RU-4AM
SB290S



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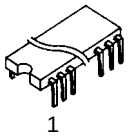

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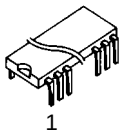

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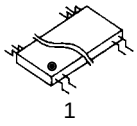
MM1311AD



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OEC7075A

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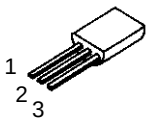

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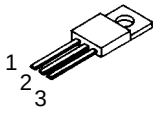

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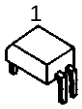
KIA7809API



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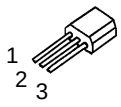

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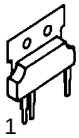

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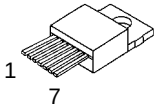
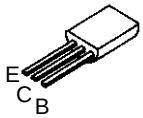


AN5522

TRANSISTOR



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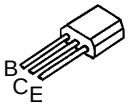
2SA1624-AA
2SC13840W
2SC1627_Y(TPE2)
2SC2909(S,T)-AA
2SC752(G)(TM)_Y
KTA1266-AT(Y,GR)



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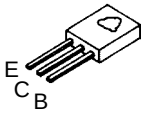
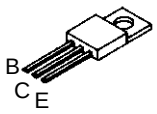
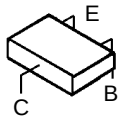
KTC3198-AT(Y,GR)
KTC3199_Y-AT
KTC3203_Y-AT



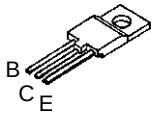
2SC2621(D,E)-RAC



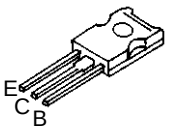
2SA1837
2SC4793
2SK3326(2)



DTA144EKAT146
KRA102SRTK
KRC102SRTK
KRC111SRTK
KTA1504S_Y_RTK
KTC3875S_Y_RTK
KTC3881S-RTK

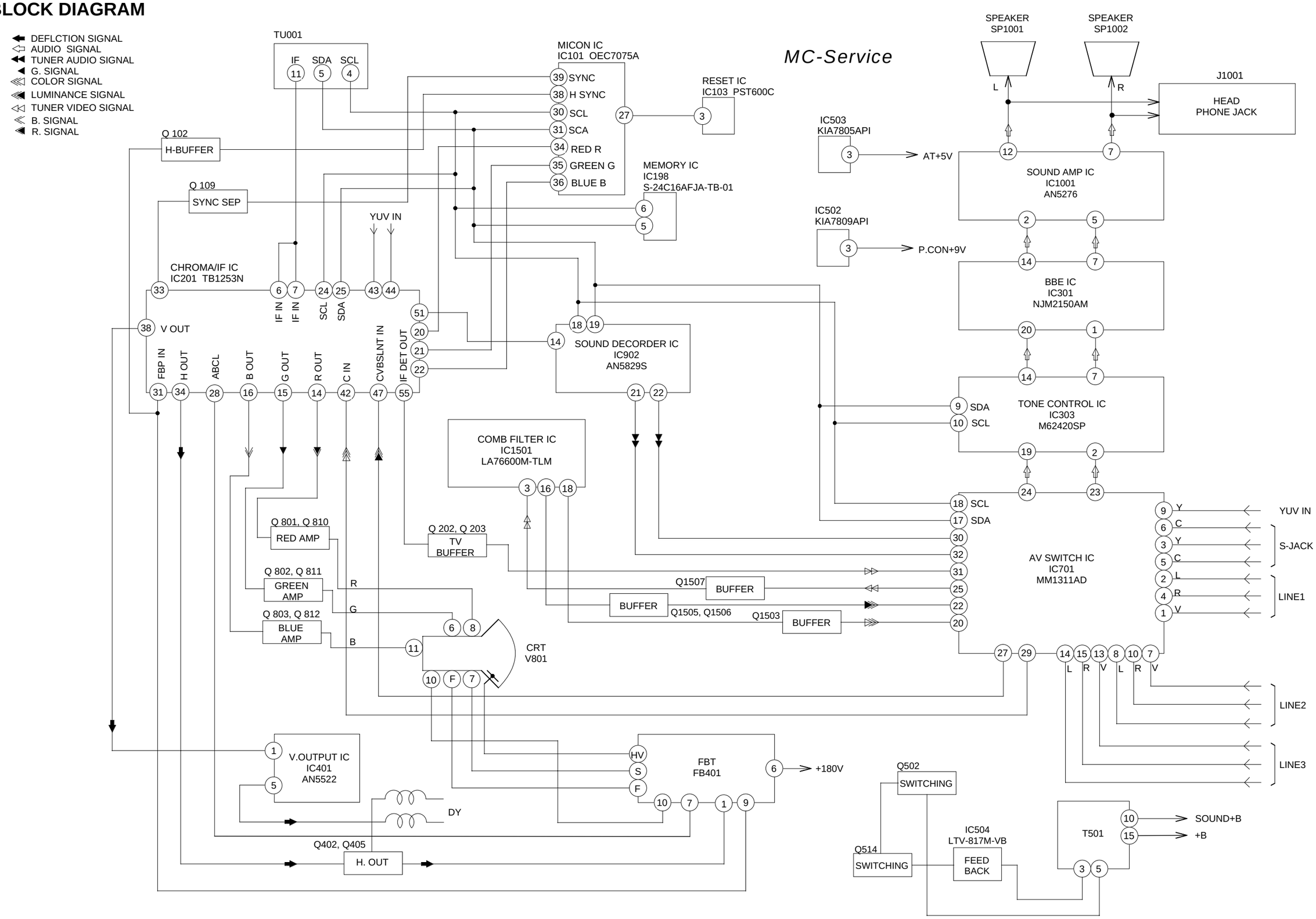


2SD2499(LBOEC1)



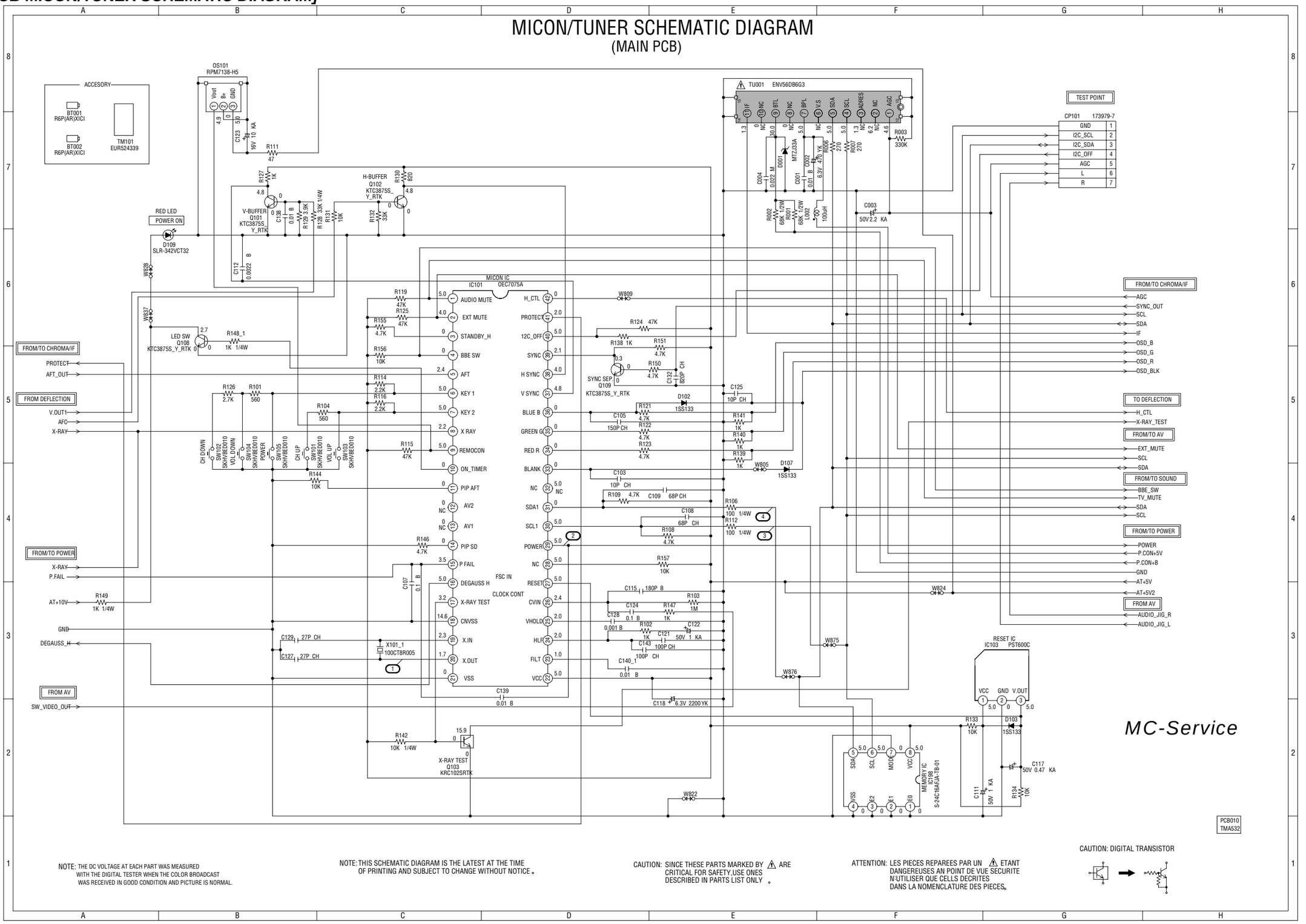
KTC4217(O,Y)

BLOCK DIAGRAM



SCHEMATIC DIAGRAMS

[MAIN PCB MICON/TUNER SCHEMATIC DIAGRAM]



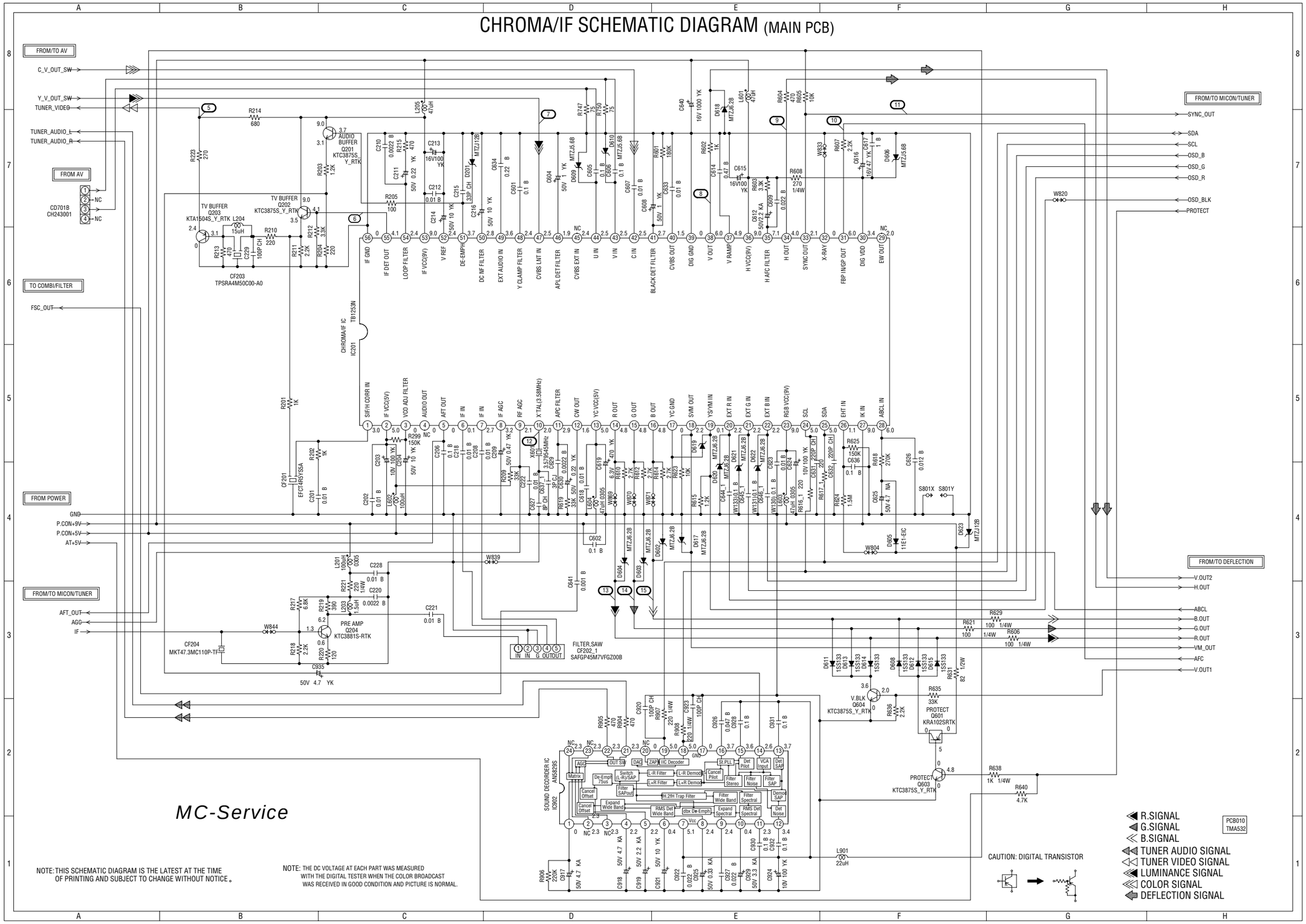
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

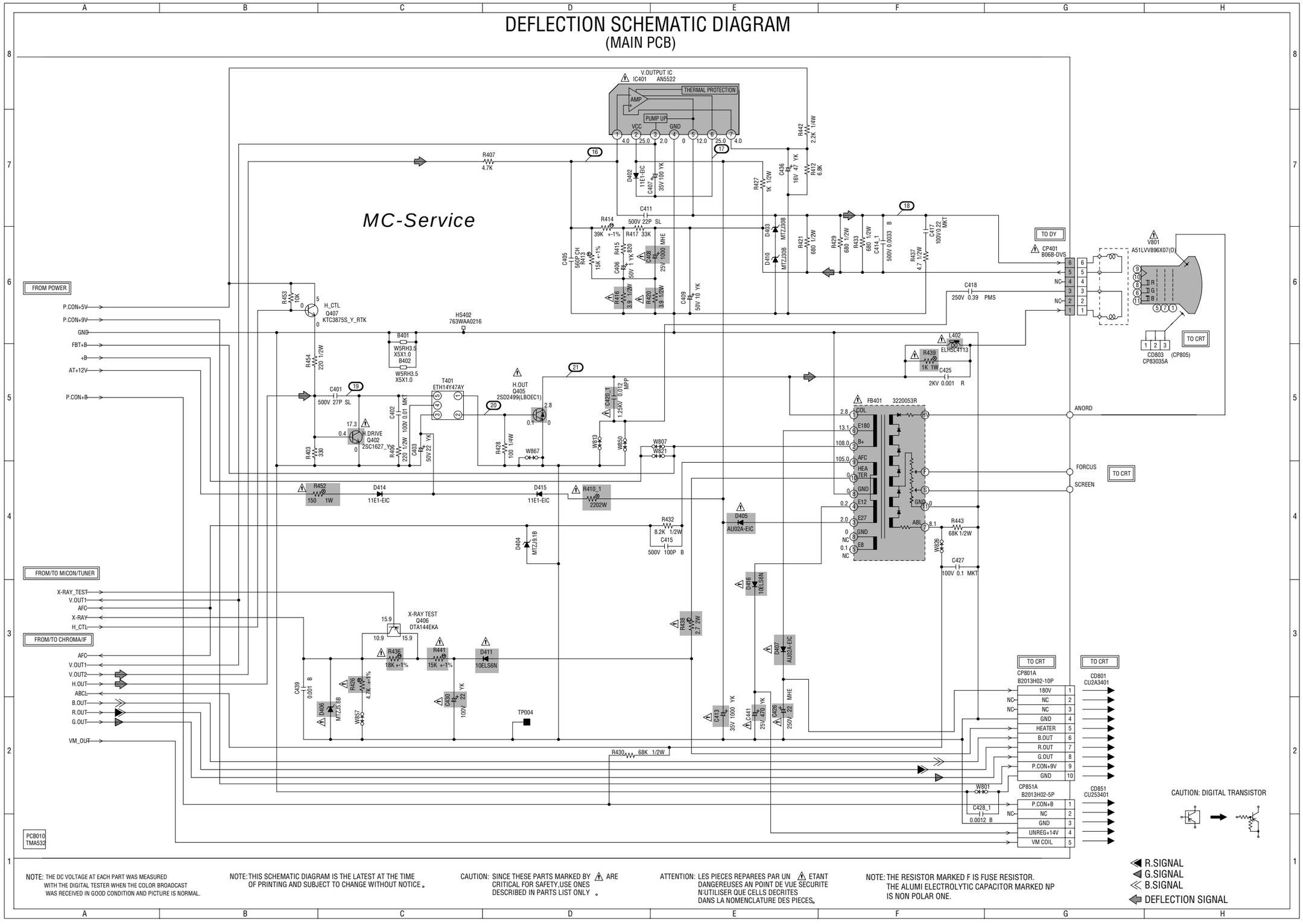
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

[MAIN PCB CHROMA/IF SCHEMATIC DIAGRAM]



[MAIN PCB DEFLECTION SCHEMATIC DIAGRAM]

DEFLECTION SCHEMATIC DIAGRAM
(MAIN PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

[MAIN PCB POWER SCHEMATIC DIAGRAM]

POWER SCHEMATIC DIAGRAM

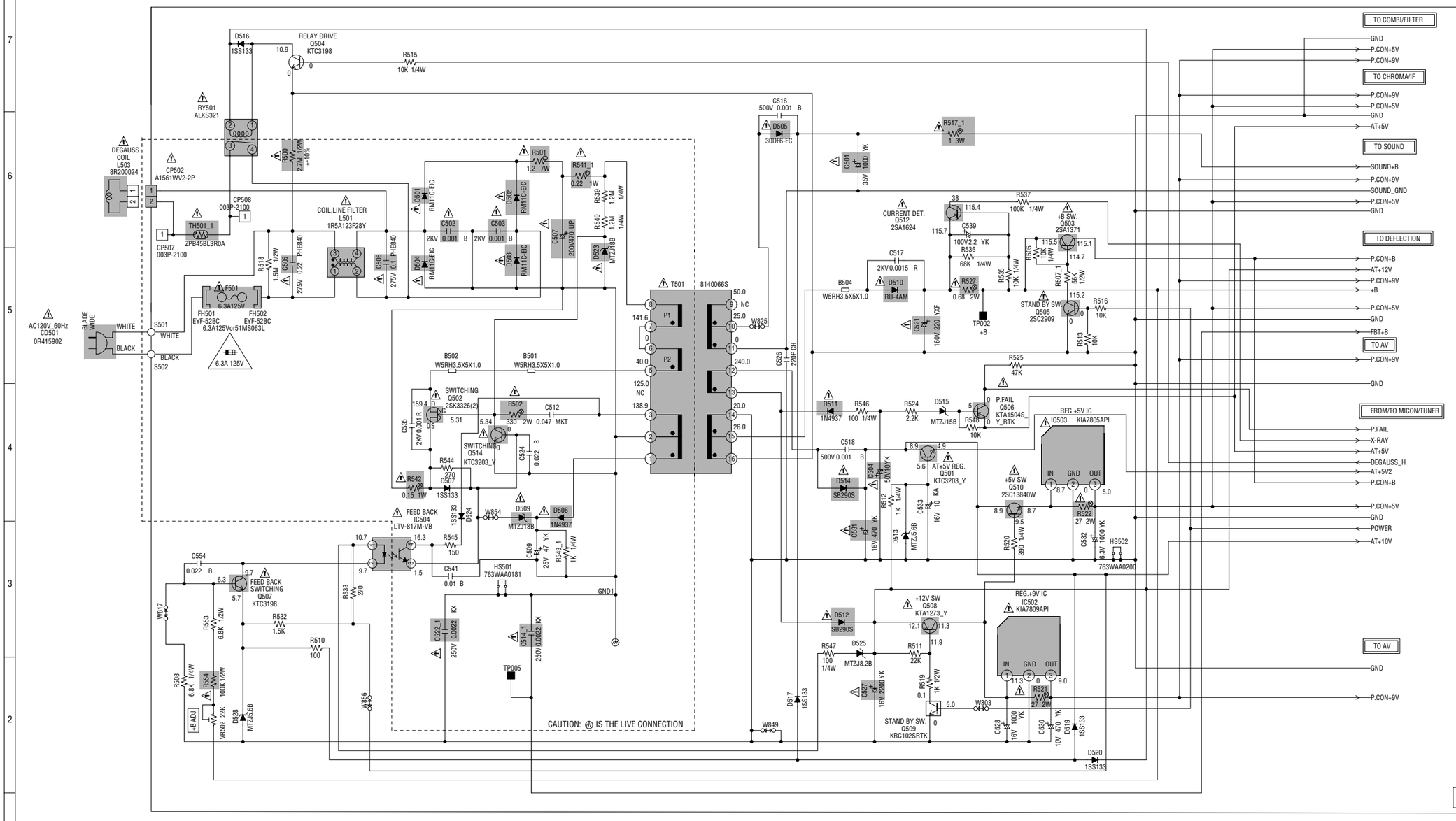
(MAIN PCB)

MC-Service

6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

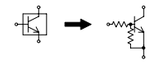
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

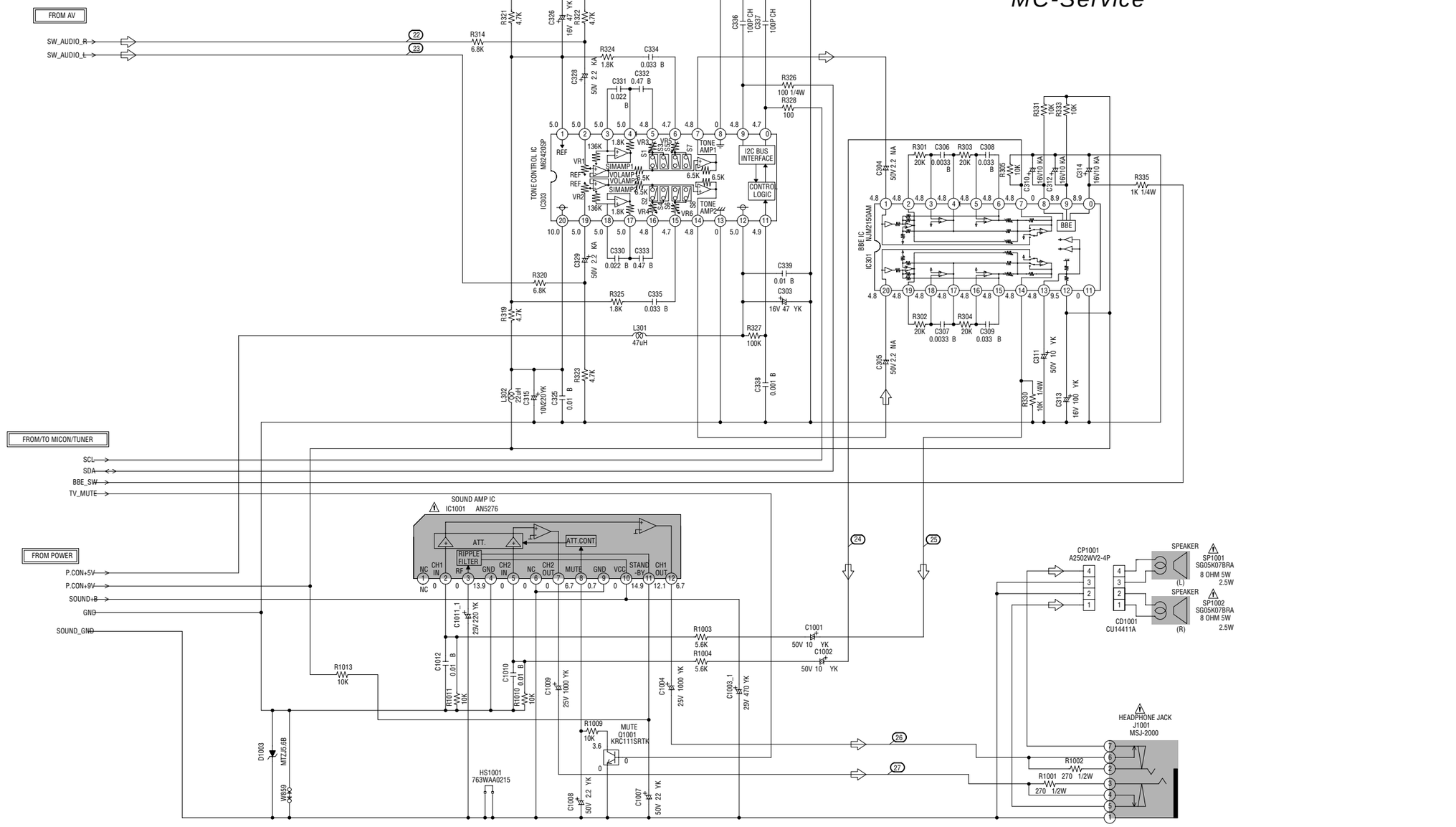
CAUTION: DIGITAL TRANSISTOR



[MAIN PCB SOUND SCHEMATIC DIAGRAM]

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)

MC-Service



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

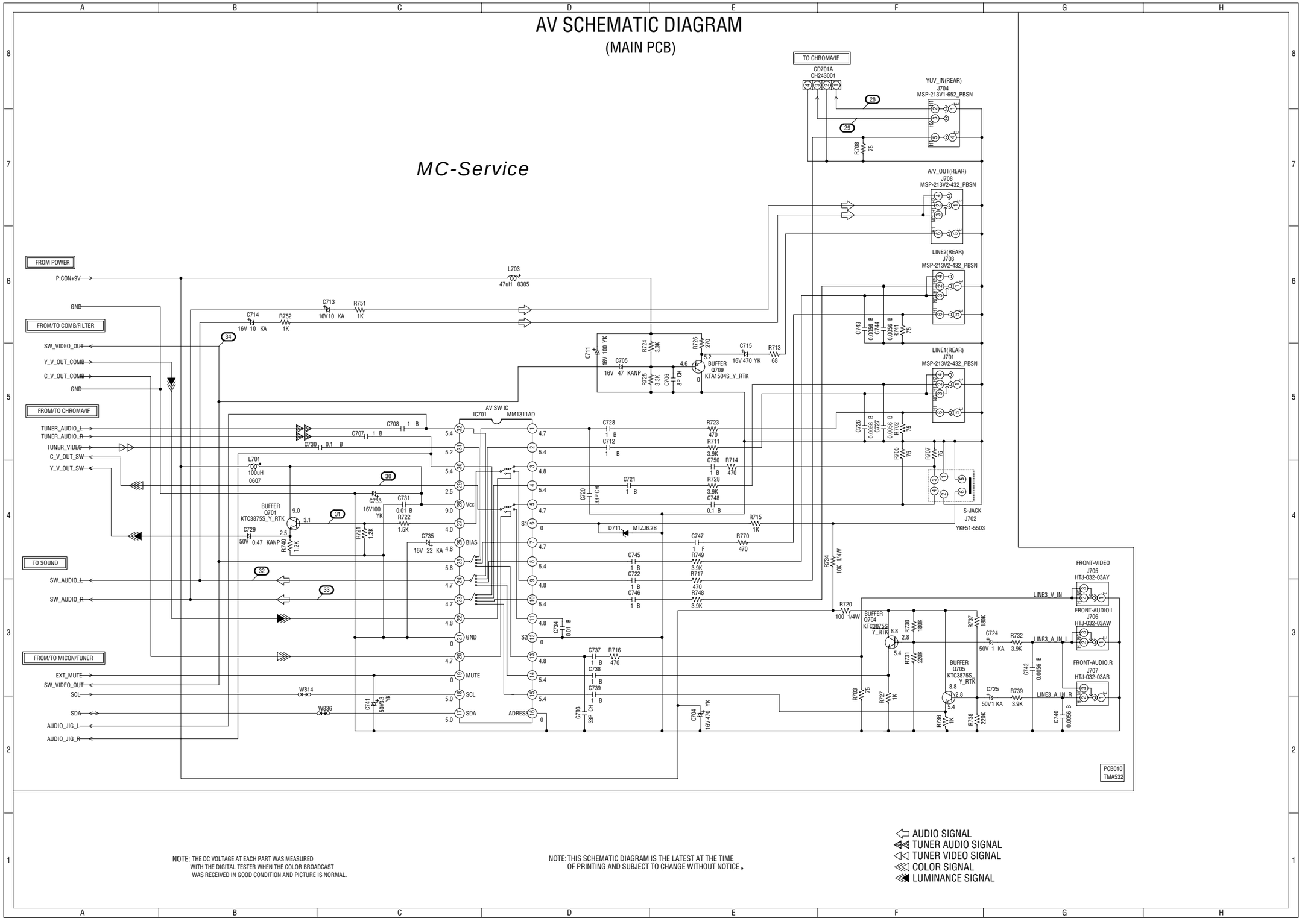
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

⇦ AUDIO SIGNAL

[MAIN PCB AV SCHEMATIC DIAGRAM]



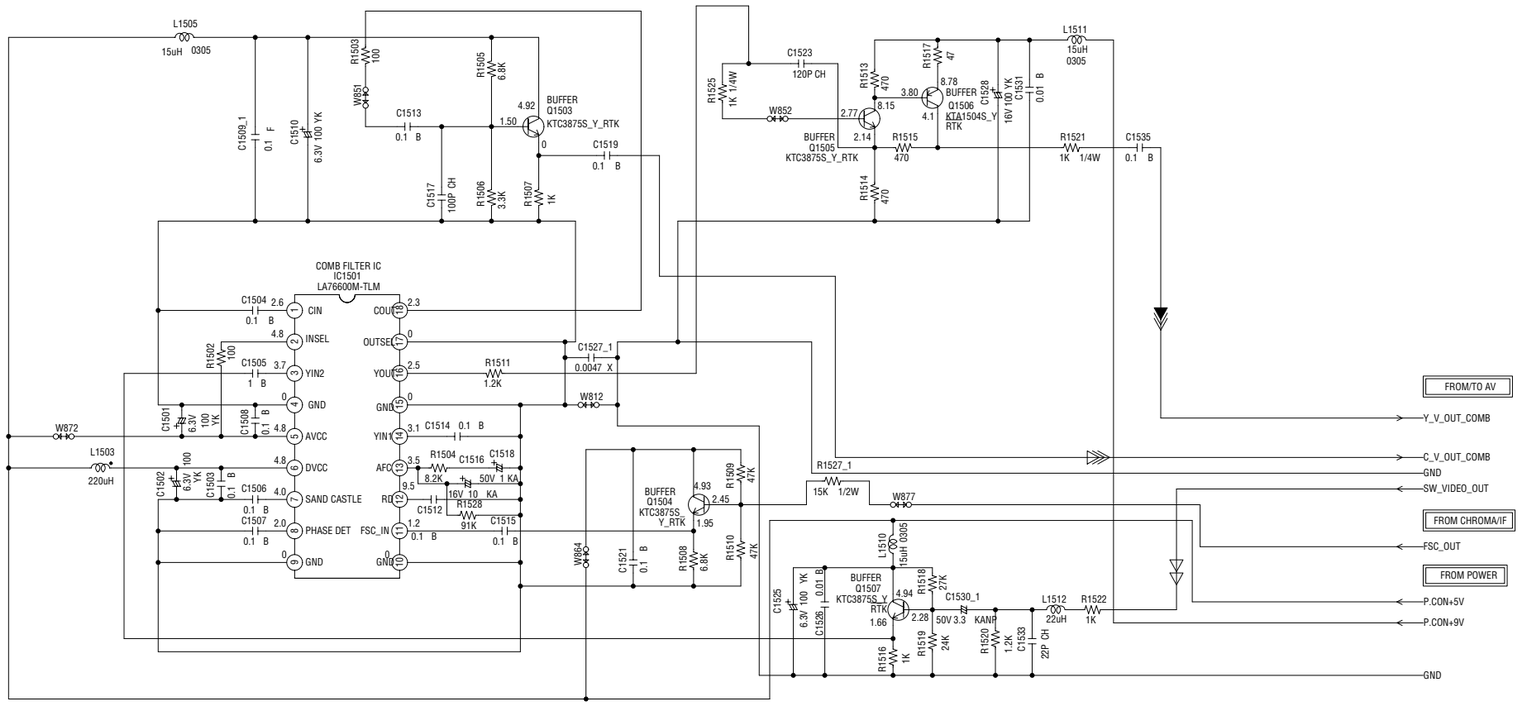
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

[MAIN PCB COMB/FILTER SCHEMATIC DIAGRAM]

COMB/FILTER SCHEMATIC DIAGRAM
(MAIN PCB)

MC-Service



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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COLOR SIGNAL
LUMINANCE SIGNAL
TUNER VIDEO SIGNAL

PCB010
TMA532

[CRT PCB AND VM COIL PCB SCHEMATIC DIAGRAMS]

CRT PCB SCHEMATIC DIAGRAM

MC-Service

PCB110
TCA391

FROM DEFLECTION

CP801_1
A2001WV2-10P

10	GND	
9	P.CON+9V	
8	G.OUT	
7	R.OUT	
6	B.OUT	
5	HEATER	
4	GND	
3	NC	NC
2	NC	NC
1	180V	

B801 W5RH3.5X5X1.0

D804 1SS133 D805 1SS133 D806 1SS133

C813 0.0022 M

TP804 R804 12K 2W L802 150uH 37 R828 2.7K 1/4W

RED AMP Q801 KTC4217 R813 220 1/4W 123.5 7.8 7.3

D801 1SS133 7.3

RED AMP Q810 KTC3199_Y R801 100 1/4W 3.0 2.4

R810 1.8K 1/4W C804 270P CH R817 330 1/4W

TP805 R805 12K 2W L803 150uH 38 R829 2.7K 1/4W

GREEN AMP Q802 KTC4217 R814 220 1/4W 123.9 7.8 7.3

D802 1SS133 7.3

GREEN AMP Q811 KTC3199_Y R802 100 1/4W 3.0 2.4

R812 1.8K 1/4W C805 220P CH R819 330 1/4W

J801 CVT3275-5101

117.0 582.0 121.0 6.2 119.0

CD811 CH013801

C815 330P B

TP806 R808 12K 2W L804 150uH 39 R830 2.7K 1/4W W804

C809 250V 2.2 YK

BLUE AMP Q803 KTC4217 R815 220 1/4W 119.7 7.8 7.3

C808 2KV 0.001 B

R809 100 1/4W

D803 1SS133

BLUE AMP Q812 KTC3199_Y R803 100 1/4W 3.1 7.3 2.5

R811 1.8K 1/4W C806 470P CH R821 330 1/4W

C823 100P B

B802 W5RH3.5X5X1.0 W802

FROM DEFLECTION

CP803
A2361WV2-3P

3	GND
2	GND
1	GND

FOCUS

CP804 005P-2100 SCREEN

FROM DEFLECTION

CP851_1
A2001WV2-5P

1	+B	
2	NC	NC
3	GND	
4	UNREG+14V	
5	VM COIL	

VM+12V IC
IC851
KIA78L12BP-AT
IN GND OUT
15.0 0 12.0

C888 50V 0.47 YK

C866 16V 470 YK

R851 120 1/2W

R855 330 1/2W

C854 16V 10 YK

C867 0.1 B

C852 16V 47 YK

C853 16V 47 YK 160V

R872 12K 1/4W

R870 1.5K 1/4W

D855 1SS133

R877 68 1/2W

C862 160V 47 YK

R879 2.7 1/2W

R864 39K 1/4W 6.0 11.8

SWITCHING Q855 KTC3198 2.5

SWITCHING Q856 KTC3198 11.8 2.5 1.8

SWITCHING Q858 2SA1837 110.0 108.0 54.5

R868 82 1/4W C860 500V 0.0047 B

C858 100P CH R867 10 1/2W

R873 68K 1/4W

B851 W5RH3.5X5X1.0

D858 1DELS2N

R876 12K 1/4W

B853 W5RH3.5X5X1.0

R874 68K 1/4W

B852 W5RH3.5X5X1.0

D857 1DELS2N

SWTCHING Q859 2SC4793 54.5 2.0 1.0

C861 500V 0.0047 B

C865 500V 150P B

R881 15 2W

FROM/TO VM

CP852
A2001WV2-3P

VM1	1	
NC	2	NC
VM2	3	

R856 1K 1/4W

R859 2.7K 1/4W

BUFFER Q851 KTC3198 11.8 2.2 0.5

BUFFER Q854 KTC3198 11.8 5.7 1.9

D853 1SS133

D854 1SS133

D852 1SS133

C851 0.0082 M

AMP Q852 KTC3198 10.3 2.0 0.

R863 3.9K 1/4W

C857 0.001 B

R854 33K 1/4W

R861 33K 1/4W

R852 2.2K 1/4W

R853 22K 1/4W

C856 0.01 B

R858 100 1/4W 5.7 0

AMP Q853 2SC752(G) (TM)_Y

R862 3.9K 1/4W

R857 470 1/2W

C855 560P CH

R860 33 1/4W

R865 56K 1/4W

SWTCHING Q857 KTA1266 82 1/4W 1.8 2.0 0

R869

R866 2.2K 1/4W

R871 1.5K 1/4W

R875 1.2K 1/4W

C859 100P CH

D856 1SS133

R878 68 1/2W

R880 2.7 1/2W

C863 160V 47 YK

C864 160V 10 YK

B803 W5RH3.5X5X1.0

PCB060
TEAA93

FROM/TO SVM

CP852B
B2013H02-3P

1	
NC	2
3	

CD852_1
CU232001

1	1
2	2
3	3

TO VM COIL

S851

S852

VM COIL PCB

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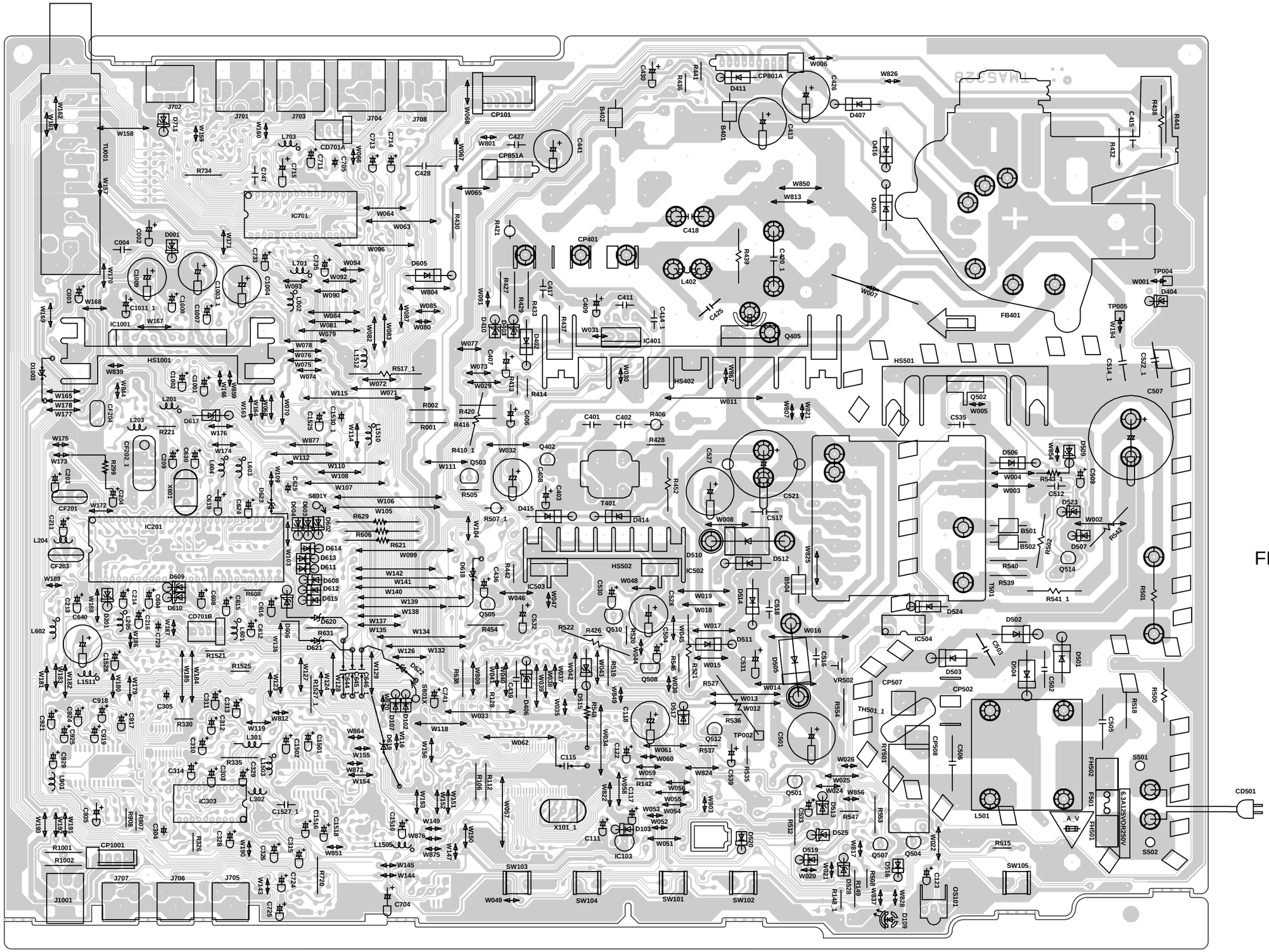
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

PATTERN DIAGRAMS

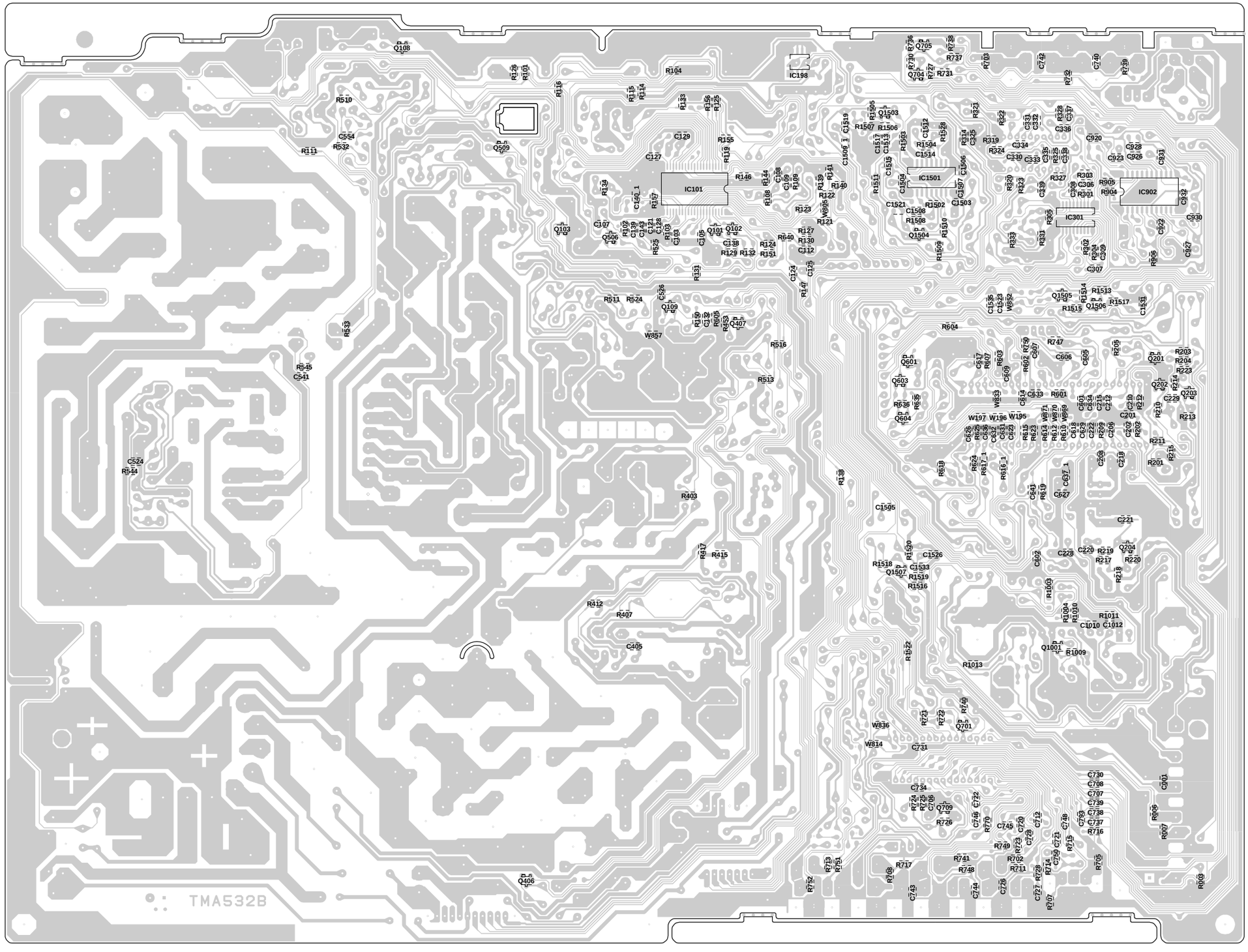
[MAIN PCB PATTERN (INSERTED PARTS)]

MC-Service

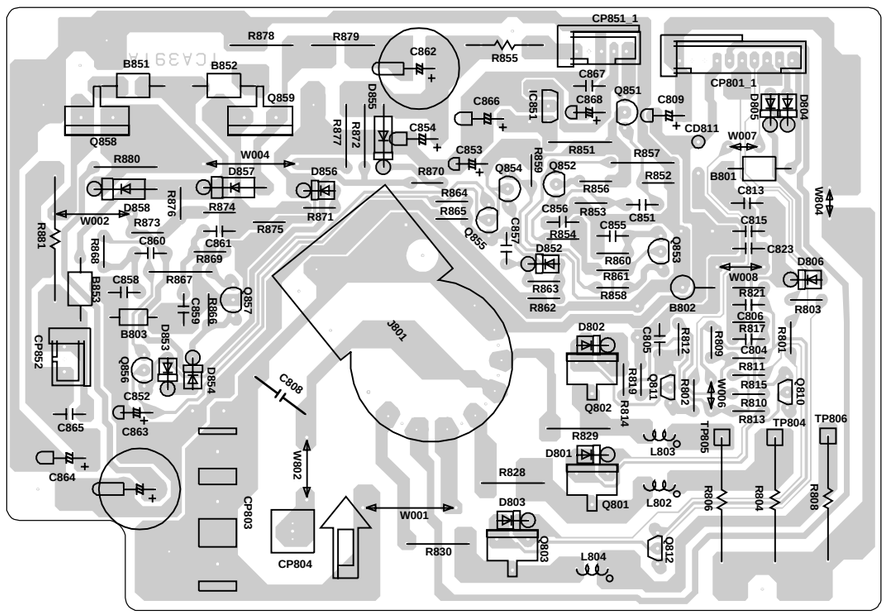


[MAIN PCB PATTERN (CHIP MOUNTED PARTS)]

MC-Service

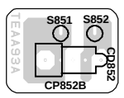


[CRT PCB PATTERN]



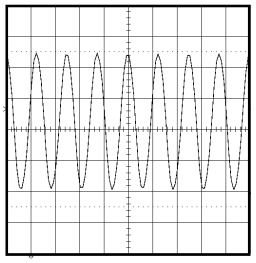
MC-Service

[VM COIL PCB PATTERN]

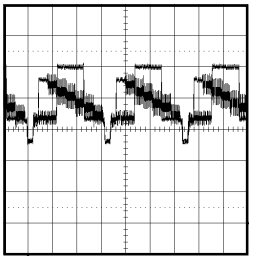


WAVEFORMS

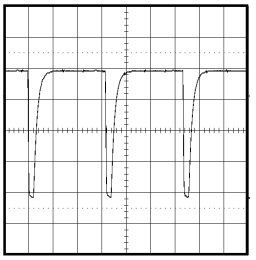
MICON/TUNER



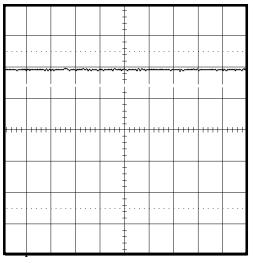
① 1V 0.1µs/div



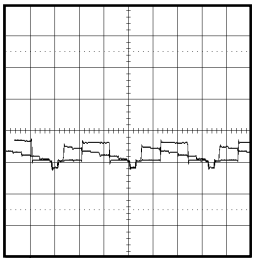
⑥ 1V 20µs/div



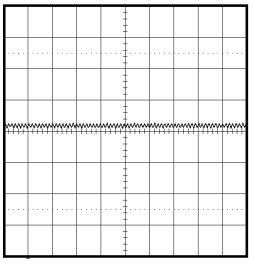
⑪ 0.5V 20µs/div



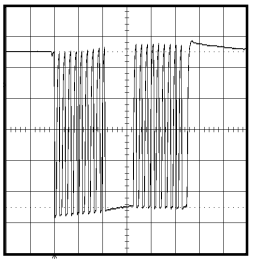
② 1V 1µs/div



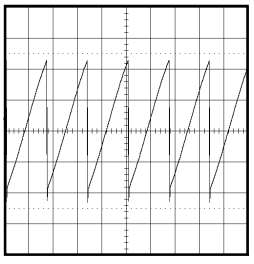
⑦ 1V 20µs/div



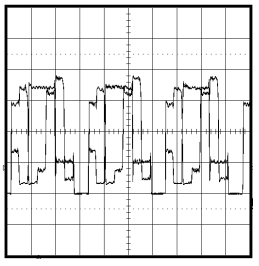
⑫ 1V 2µs/div



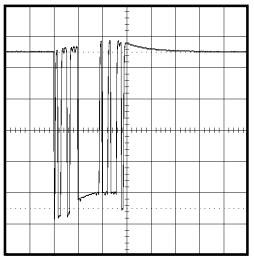
③ 1V 50µs/div



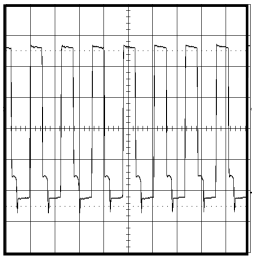
⑧ 0.5V 10ms/div



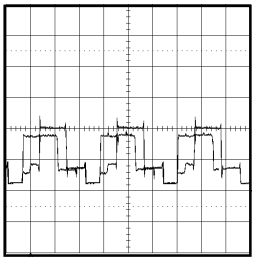
⑬ 1V 20µs/div



④ 1V 0.1ms/div

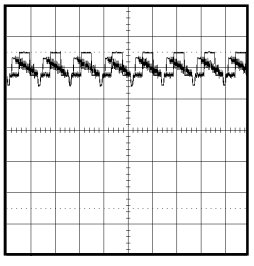


⑨ 1V 50µs/div

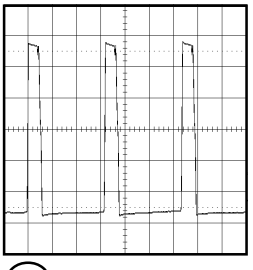


⑭ 2V 20µs/div

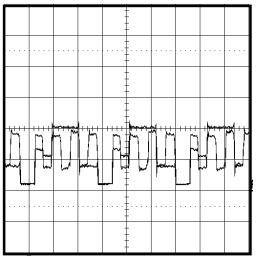
CHROMA/IF



⑤ 1V 50µs/div



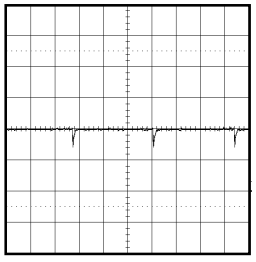
⑩ 2V 20µs/div



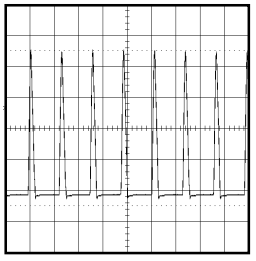
⑮ 2V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

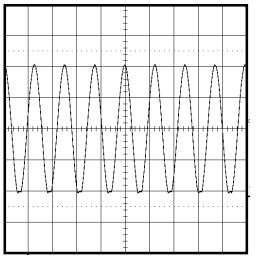
DEFLECTION



⑯ 2V 5ms/div

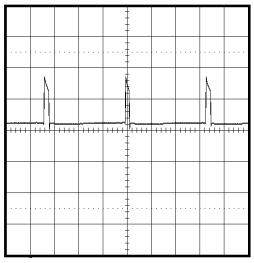


㉑ 200V 50µs/div

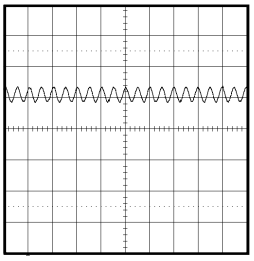


㉖ 5V 2ms/div

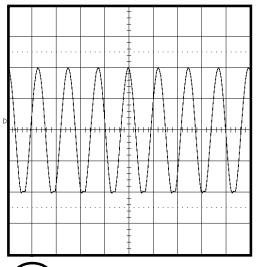
SOUND



⑰ 20V 5ms/div

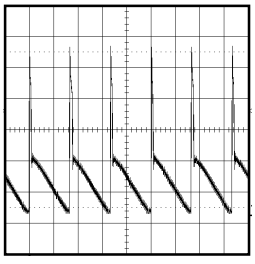


㉒ 2V 5ms/div

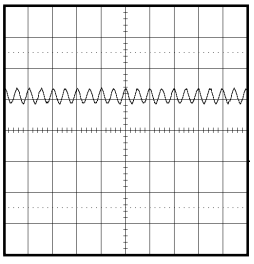


㉗ 5V 2ms/div

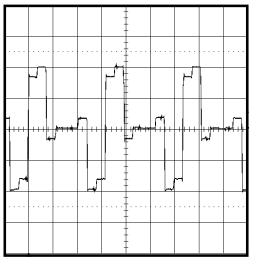
AV



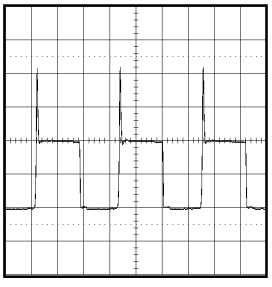
⑱ 10V 10ms/div



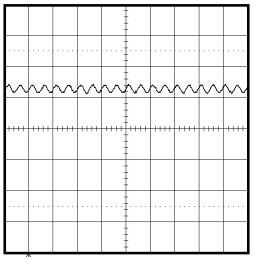
㉓ 2V 5ms/div



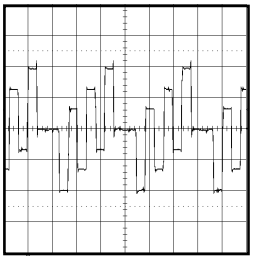
㉘ 200mV 20µs/div



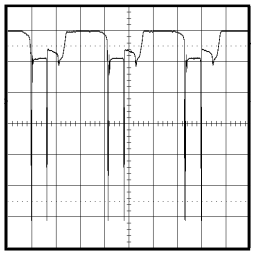
⑲ 20V 20 s/div



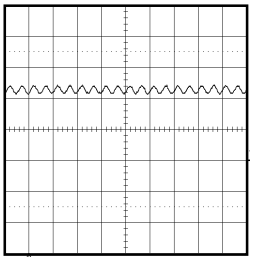
㉔ 2V 5ms/div



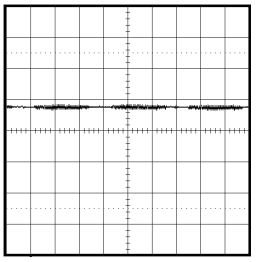
㉙ 200mV 20µs/div



⑳ 2V 20µs/div

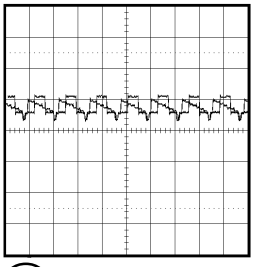


㉕ 2V 5ms/div

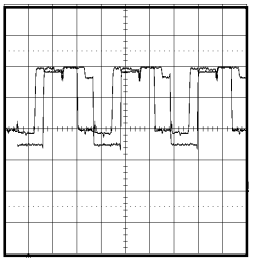


㉚ 2V 20µs/div

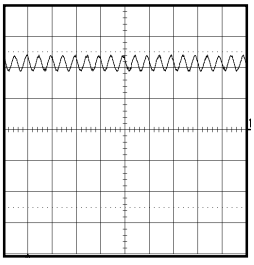
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.



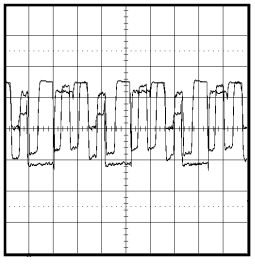
(31) 1V 50µs/div



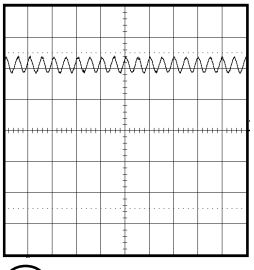
(38) 50V 20µs/div



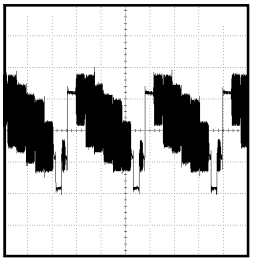
(32) 2V 5ms/div



(39) 50V 20µs/div

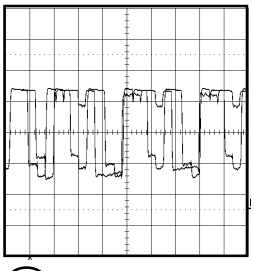


(33) 2V 5ms/div



(34) 500mV 20µs/div

CRT



(37) 50V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.